Appendix 25
Climate Change and Greenhouse Gas Emissions

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Appendix D. Best Management Practices for Construction and Maintenance Activities to Reduce Greenhouse Gas Emissions

The following measures are considered best management practices (BMPs) for DWR construction and maintenance activities. Implementation of these practices will reduce greenhouse gas (GHG) emissions from construction projects by minimizing fuel usage by construction equipment, reducing fuel consumption for transportation of construction materials, reducing the amount of landfill material, and reducing emissions from the production of cement.

Pre-Construction and Final Design BMPs

Pre-construction and Final Design BMPs are designed to ensure that individual projects are evaluated and their unique characteristics taken into consideration when determining if specific equipment, procedures, or material requirements are feasible and efficacious for reducing GHG emissions from the project. While all projects will be evaluated to determine if these BMPs are applicable, not all projects will implement all the BMPs listed below.

BMP 1. Evaluate project characteristics, including location, project work flow, site conditions, and equipment performance requirements, to determine whether specifications of the use of equipment with repowered engines, electric drive trains, or other high efficiency technologies are appropriate and feasible for the project or specific elements of the project.

BMP 2. Evaluate the feasibility and efficacy of performing on-site material hauling with trucks equipped with on-road engines.

BMP 3. Ensure that all feasible avenues have been explored for providing an electrical service drop to the construction site for temporary construction power. When generators must be used, use alternative fuels, such as propane or solar, to power generators to the maximum extent feasible.

BMP 4. Evaluate the feasibility and efficacy of producing concrete on-site and specify that batch plants be set up on-site or as close to the site as possible.

BMP 5. Evaluate the performance requirements for concrete used on the project and specify concrete mix designs that minimize GHG emissions from cement production and curing while preserving all required performance characteristics.

BMP 6. Limit deliveries of materials and equipment to the site to off peak traffic congestion hours.

Construction BMPs

Construction BMPs apply to all construction and maintenance projects that DWR completes or for which DWR issues contracts. All projects are expected to implement all Construction BMPs unless a variance is granted by the Division of Engineering Chief, Division of Operation and Maintenance Chief, or Division of Flood Management Chief, as applicable and the variance is approved by the DWR CEQA Climate Change Committee. Variances will be granted when specific project conditions or characteristics make implementation of the BMP infeasible and where omitting the BMP will not be detrimental to the project's consistency with the Greenhouse Gas Reduction Plan.

BMP 7. Minimize idling time by requiring that equipment be shut down after five minutes when not in use (as required by the State airborne toxics control measure [Title 13, Section 2485 of the California Code of Regulations]). Provide clear signage that posts this requirement for workers at the entrances to the site and provide a plan for the enforcement of this requirement.

BMP 8. Maintain all construction equipment in proper working condition and perform all preventative maintenance. Required maintenance includes compliance with all manufacturer's recommendations, proper upkeep and replacement of filters and mufflers, and maintenance of all engine and emissions systems in proper operating condition. Maintenance schedules shall be detailed in an Air Quality Control Plan prior to commencement of construction.

BMP 9. Implement tire inflation program on jobsite to ensure that equipment tires are correctly inflated. Check tire inflation when equipment arrives on-site and every two weeks for equipment that remains on-site. Check vehicles used for hauling materials off-site weekly for correct tire inflation. Procedures for the tire inflation program shall be documented in an Air Quality Management Plan prior to commencement of construction.

BMP 10. Develop a project specific ride share program to encourage carpools, shuttle vans, transit passes and/or secure bicycle parking for construction worker commutes.

BMP 11. Reduce electricity use in temporary construction offices by using high efficiency lighting and requiring that heating and cooling units be Energy Star compliant. Require that all contractors develop and implement procedures for turning off computers, lights, air conditioners, heaters, and other equipment each day at close of business.

BMP 12. For deliveries to project sites where the haul distance exceeds 100 miles and a heavy-duty class 7 or class 8 semi-truck or 53-foot or longer box type trailer is used for hauling, a SmartWay[27] certified truck will be used to the maximum extent feasible.

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[27] The U.S. Environmental Protection Agency has developed the SmartWay truck and trailer certification program to set voluntary standards for trucks and trailers that exhibit the highest fuel efficiency and emissions reductions. These tractors and trailers are outfitted at point of sale or

BMP 13. Minimize the amount of cement in concrete by specifying higher levels of cementitious material alternatives, larger aggregate, longer final set times, or lower maximum strength where appropriate.

BMP 14. Develop a project specific construction debris recycling and diversion program to achieve a documented 50% diversion of construction waste.

BMP 15. Evaluate the feasibility of restricting all material hauling on public roadways to off-peak traffic congestion hours. During construction scheduling and execution minimize, to the extent possible, uses of public roadways that would increase traffic congestion.

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retrofitted with equipment that significantly reduces fuel use and emissions including idle reduction technologies, improved aerodynamics, automatic tire inflation systems, advanced lubricants, advanced powertrain technologies, and low rolling resistance tires.

Appendix 25A-2
North-of-the-Delta Offstream Storage Project, Summary Results of Operations Analyses of GHG Emissions Reductions Related to Various Energy Storage Participation Scenarios

Alternative A

North-of-the-Delta Offstream Storage Project, Alternative A

Project Facilities Pumping

	MWh	Fraction of Total
On-Peak Pumping	64,904	0.16
Off-Peak Pumping	139,269	0.35
PumpBack Pumping	194,503	0.49

Project Facilities Generation

	MWh	Fraction of Total
On Peak Generation	240,723	0.99
Off Peak Generation	1,845	0.01

GHG Emission Assumptions

	MTCO2e Per MWh
Baseload emission	0.363
Peakers emissions	0.545

Summary Results of Operations Analyses of GHG Emissions Reductions Related to Various Energy Storage Participation Scenarios

	Operational Mode	Average Annual Load-Gen	Wind or Solar used or shifted	GHG Emissions	Baseload Used or Displaced	GHG Emissions	Firming Energy Displaced	Reduced GHG Emissions	Annual Emission Reduction
		MWh	MWh	MTCO2e	MWh	MTCO2e	MWh	MTCO2e	MTCO2e
Scenario 1									
Excess Wind (80%)+Integration Service (20%)	Pumping	398,677	318,941	0	0	0	79,735	(41,093)	(41,093)
Resource shifting (80%)+ Integration Service (20%)	Generation	242,568	194,054	(79,271)	0	0	48,514	(17,610)	(96,882)
								Annual Total =	(137,975)
Scenario 2									
Excess Wind (50%)+ Baseload (30%)+ Integration Service (20%)	Pumping	398,677	199,338	0	119,603	43,416	79,735	(41,093)	2,323
Resource shifting (80%) + Integration Service (20%)	Generation	242,568	121,284	(49,545)	72,770	(29,727)	48,514	(17,610)	(96,882)
								Annual Total =	(94,559)
Scenario 3									
Baseload (80%) + Integration Service (20%)	Pumping	398,677	0	0	318,941	115,776	79,735	(41,093)	74,682
Resource shifting (80%) + Integration Service (20%)	Generation	242,568	0	0	194,054	(79,271)	48,514	(17,610)	(96,882)
								Annual Total =	(22,199)

Notes:
1- NODOS Pumping-Generating Cycle efficiency is assumed to be 74% (i.e. Energy Recovery Rate)
2-Baseload units are assumed to be the Marginal units in the Off-Peak hours @0.363 MTCO2e Per MWh
3-Baseload units are the Marginal units 75% of the time in the On-Peak hours
4-Peaker plants are the Marginal units 25% of the time in the On Peak hours @ 0.568 MTCO2e per MWh
5- Scenario 4 is very unlikely operational Scenario and serve as the worst case Scenario
6-NODOS Renewable Integration participation would displace baseload units in the On-Peak, and Peakers in the Off-Peak

Alternative B

North-of-the-Delta Offstream Storage Project, Alternative B

Project Facilities Pumping

	MWh	Fraction of Total
On-Peak Pumping	22,999	0.06
Off-Peak Pumping	148,930	0.41
PumpBack Pumping	193,799	0.53

Project Facilities Generation

	MWh	Fraction of Total
On Peak Generation	241,449	1.00
Off Peak Generation	380	0.00

GHG Emission Assumptions

	MTCO2e Per MWh
Baseload emission	0.363
Peakers emissions	0.545

Summary Results of Operations Analyses of GHG Emissions Reductions Related to Various Energy Storage Participation Scenarios

	Operational Mode	Average Annual Load-Gen	Wind or Solar used or shifted	GHG Emissions	Baseload Used or Displaced	GHG Emissions	Firming Energy Displaced	Reduced GHG Emissions	Annual Emission Reduction
		MWh	MWh	MTCO2e	MWh	MTCO2e	MWh	MTCO2e	MTCO2e
Scenario 1									
Excess Wind (80%)+Integration Service (20%)	Pumping	365,728	292,583	0	0	0	73,146	(39,027)	(39,027)
Resource shifting (80%)+ Integration Service (20%)	Generation	241,830	193,464	(79,030)	0	0	48,366	(17,557)	(96,587)
								Annual Total =	(135,614)
Scenario 2									
Excess Wind (50%)+ Baseload (30%)+ Integration Service (20%)	Pumping	365,728	182,864	0	109,718	39,828	73,146	(39,027)	801
Resource shifting (80%) + Integration Service (20%)	Generation	241,830	120,915	(49,394)	72,549	(29,636)	48,366	(17,557)	(96,587)
								Annual Total =	(95,786)
Scenario 3									
Baseload (80%) + Integration Service (20%)	Pumping	365,728	0	0	292,583	106,207	73,146	(39,027)	67,180
Resource shifting (80%) + Integration Service (20%)	Generation	241,830	0	0	193,464	(79,030)	48,366	(17,557)	(96,587)
								Annual Total =	(29,406)

Notes:

1- NODOS Pumping-Generating Cycle efficiency is assumed to be 74% (i.e. Energy Recovery Rate)

2-Baseload units are assumed to be the Marginal units in the Off-Peak hours @0.363 MTCO2e Per MWh

3-Baseload units are the Marginal units 75% of the time in the On-Peak hours

4-Peaker plants are the Marginal units 25% of the time in the On Peak hours @ 0.568 MTCO2e per MWh

5- Scenario 4 is very unlikely operational Scenario and serve as the worst case Scenario

6-NODOS Renewable Integration participation would displace baseload units in the On-Peak, and Peakers in the Off-Peak

Alternative C

North-of-the-Delta Offstream Storage Project, Alternative C

Project Facilities Pumping

	MWh	Fraction of Total
On-Peak Pumping	74,842	0.18
Off-Peak Pumping	162,649	0.39
PumpBack Pumping	183,746	0.44

Project Facilities Generation

	MWh	Fraction of Total
On Peak Generation	259,326	0.99
Off Peak Generation	1,734	0.01

GHG Emission Assumptions

	MTCO2e Per MWh
Baseload emission	0.363
Peakers emissions	0.545

Summary Results of Operations Analyses of GHG Emissions Reductions Related to Various Energy Storage Participation Scenarios

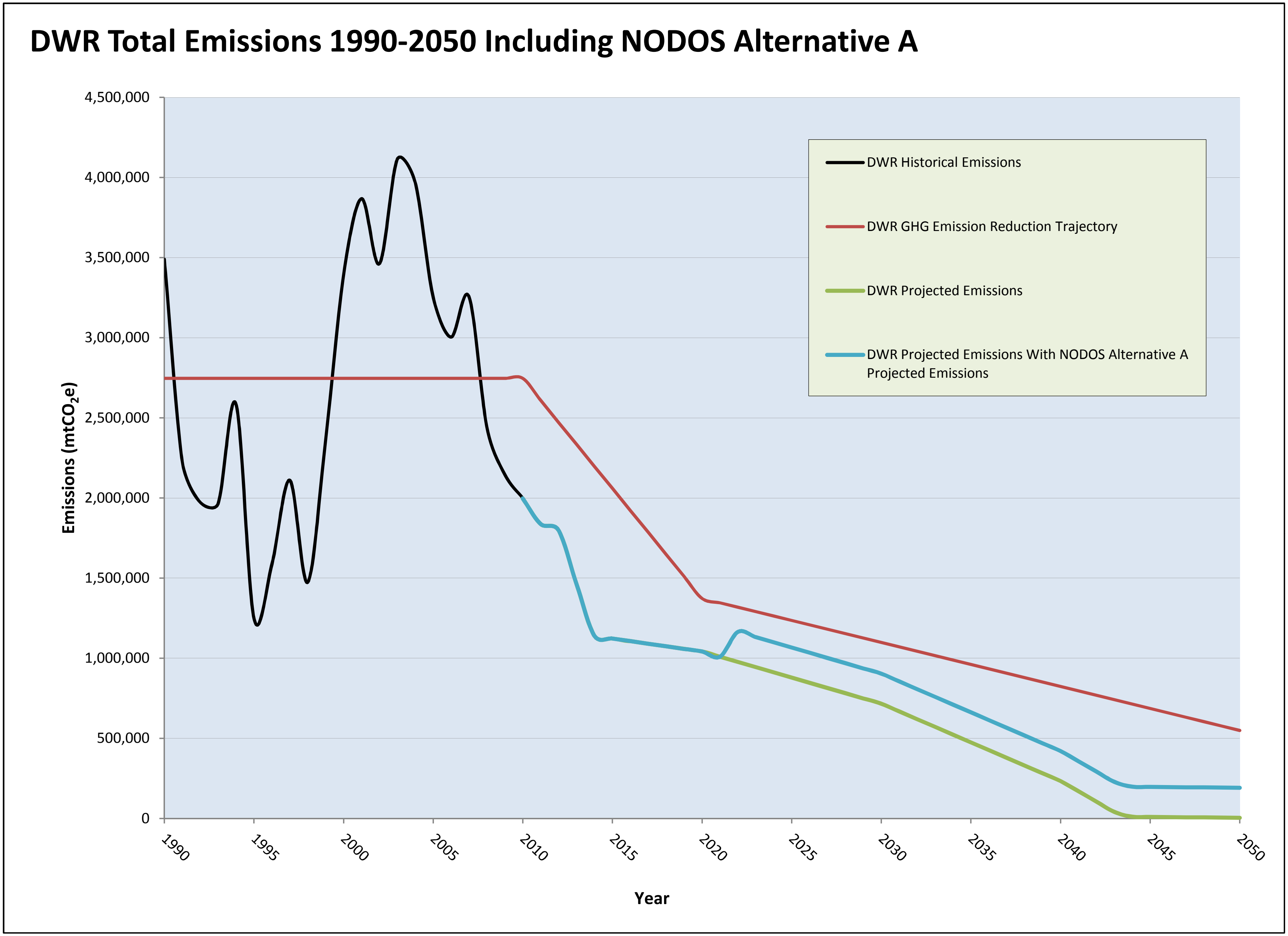
	Operational Mode	Average Annual Load-Gen	Wind or Solar used or shifted	GHG Emissions	Baseload Used or Displaced	GHG Emissions	Firming Energy Displaced	Reduced GHG Emissions	Annual Emission Reduction
		MWh	MWh	MTCO2e	MWh	MTCO2e	MWh	MTCO2e	MTCO2e
Scenario 1									
Excess Wind (80%)+Integration Service (20%)	Pumping	421,237	336,990	0	0	0	84,247	(43,191)	(43,191)
Resource shifting (80%)+ Integration Service (20%)	Generation	261,060	208,848	(85,314)	0	0	52,212	(18,953)	(104,267)
								Annual Total =	(147,458)
Scenario 2									
Excess Wind (50%)+ Baseload (30%)+ Integration Service (20%)	Pumping	421,237	210,619	0	126,371	45,873	84,247	(43,191)	2,682
Resource shifting (80%) + Integration Service (20%)	Generation	261,060	130,530	(53,321)	78,318	(31,993)	52,212	(18,953)	(104,267)
								Annual Total =	(101,585)
Scenario 3									
Baseload (80%) + Integration Service (20%)	Pumping	421,237	0	0	336,990	122,327	84,247	(43,191)	79,137
Resource shifting (80%) + Integration Service (20%)	Generation	261,060	0	0	208,848	(85,314)	52,212	(18,953)	(104,267)
								Annual Total =	(25,131)

Notes:
1- NODOS Pumping-Generating Cycle efficiency is assumed to be 74% (i.e. Energy Recovery Rate)
2-Baseload units are assumed to be the Marginal units in the Off-Peak hours @0.363 MTCO2e Per MWh
3-Baseload units are the Marginal units 75% of the time in the On-Peak hours
4-Peaker plants are the Marginal units 25% of the time in the On Peak hours @ 0.568 MTCO2e per MWh
5- Scenario 4 is very unlikely operational Scenario and serve as the worst case Scenario
6-NODOS Renewable Integration participation would displace baseload units in the On-Peak, and Peakers in the Off-Peak

Appendix 25A-3
North-of-the-Delta Offstream Storage Project, Total Emissions Chart and Calculations and Detailed Operations Emissions

Alternative A

Historical, Projected Without and With Project
1990 - 2050



DWR Total Emissions 1990-2050 Including NODOS Alternative A
Emissions ($mtCO_2e$)
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Year
DWR Historical Emissions
DWR GHG Emission Reduction Trajectory
DWR Projected Emissions
DWR Projected Emissions With NODOS Alternative A Projected Emissions

North-of-the Delta Offstream Storage Project Alternative A Total Emissions - Historical and Projected, 1990-2050

- Historical estimates done by PARO
- Current Emissions Calculations
- Future Projections done by PARO
- Future Projections done by Climate Adaptation Branch
- DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMaintenan. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative A Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
1986	1,749,503	891,684	28,200	8,171	17,525						1,803,399	945,580						
1987	1,991,296	1,382,127	28,200	8,171	17,525						2,045,192	1,436,023						
1988	2,689,673	2,296,861	28,200	8,171	17,525						2,743,569	2,350,757						
1989	3,245,116	2,835,457	28,200	8,171	17,525						3,299,012	2,889,353						
1990	3,436,218	3,037,914	28,200	8,171	17,525						3,490,114	3,091,810					2,746,191	2,367,045
1991	2,172,342	2,005,774	28,000	8,171	17,525						2,226,038	2,059,470					2,746,191	2,367,045
1992	1,918,826	1,659,218	27,700	8,171	17,525						1,972,222	1,712,614					2,746,191	2,367,045
1993	1,911,030	1,337,370	27,500	8,171	17,525						1,964,226	1,390,566					2,746,191	2,367,045
1994	2,532,737	1,965,892	27,200	8,171	17,525						2,585,633	2,018,788					2,746,191	2,367,045
1995	1,196,658	431,345	26,900	8,171	17,525						1,249,254	483,941					2,746,191	2,367,045
1996	1,532,355	705,825	26,700	8,171	17,525						1,584,751	758,221					2,746,191	2,367,045
1997	2,058,493	901,895	26,400	8,171	17,525						2,110,589	953,991					2,746,191	2,367,045
1998	1,421,625	1,542,357	26,200	8,171	17,525						1,473,521	1,594,253					2,746,191	2,367,045
1999	2,310,173	1,780,799	25,900	8,171	17,525						2,361,769	1,832,395					2,746,191	2,367,045
2000	3,338,492	2,658,101	25,600	8,171	17,525						3,389,788	2,709,397					2,746,191	2,367,045
2001	3,816,900	2,784,901	25,400	8,171	17,525						3,867,996	2,835,997					2,746,191	2,367,045
2002	3,411,156	2,906,905	25,100	8,171	17,525						3,461,952	2,957,701					2,746,191	2,367,045
2003	4,063,664	3,304,548	24,900	8,171	17,525						4,114,260	3,355,144					2,746,191	2,367,045
2004	3,916,983	3,283,511	24,600	8,171	17,525						3,967,279	3,333,807					2,746,191	2,367,045
2005	3,202,498	2,797,704	24,400	8,171	17,525						3,252,594	2,847,800					2,746,191	2,367,045
2006	2,954,078	2,124,363	24,100	8,171	17,525						3,003,874	2,174,159					2,746,191	2,367,045
2007	3,214,498	2,892,243	23,800	10,809	6,142						3,255,249	2,932,994					2,746,191	2,367,045
2008	2,400,921	2,076,036	23,600	6,803	7,644						2,438,968	2,114,083					2,746,191	2,367,045
2009	2,076,089	1,953,290	23,600	6,901	38,789						2,145,379	2,022,580					2,746,191	2,367,045
2010	1,948,562	1,948,562	No data	No data	No data			23600	8,171	17,525	1,997,858	1,997,858	1,997,858	1,997,858	(748,333)	1,997,858	2,746,191	2,367,045
2011						1,788,672	1,788,672	23452	8171	17171			1,837,465	1,837,465	(771,416)	1,652,757	2,608,881	
2012						1,749,836	1,749,836	23304	8171	16816			1,798,127	1,798,127	(673,445)	2,299,946	2,471,572	
2013						1,413,658	1,413,658	23155	8171	16462			1,461,446	1,461,446	(872,816)	1,842,216	2,334,262	
2014						1,092,376	1,092,376	23007	8171	16107			1,139,661	1,139,661	(1,057,291)	1,237,693	2,196,953	
2015						1,076,644	1,076,644	22859	8171	15753			1,123,427	1,123,427	(936,216)	1,191,598	2,059,643	
2016						1,060,912	1,060,912	22711	8171	15399			1,107,192	1,107,192	(815,141)	1,961,434	1,922,334	
2017						1,045,180	1,045,180	22563	8171	15044			1,090,958	1,090,958	(694,066)	1,953,533	1,785,024	
2018						1,029,448	1,029,448	22414	8171	14690			1,074,723	1,074,723	(572,992)	1,005,217	1,647,714	
2019						1,013,716	1,013,716	22266	8171	14335			1,058,488	1,058,488	(451,917)	1,518,596	1,510,405	
2020						997,984	997,984	22118	8171	13981			1,042,254	1,042,254	(330,842)	428,386	1,373,095	
2021						966,520	966,520	21614	7982	13565			1,009,681	1,009,681	(335,953)	408,839	1,345,633	

North-of-the Delta Offstream Storage Project Alternative A Total Emissions - Historical and Projected, 1990-2050

- Historical estimates done by PARO
- Current Emissions Calculations
- Future Projections done by PARO
- Future Projections done by Climate Adaptation Branch
- DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMainten. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative A Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
2022						935,056	1,122,529	21110	7793	13149			977,108	1,164,581	(153,591)	675,260	1,318,172	
2023						903,592	1,091,065	20606	7604	12733			944,535	1,132,008	(158,702)	364,652	1,290,710	
2024						872,128	1,059,601	20102	7415	12317			911,962	1,099,435	(163,813)	619,604	1,263,248	
2025						840,664	1,028,137	19598	7226	11901			879,389	1,066,862	(168,924)	240,069	1,235,786	
2026						809,200	996,673	19094	7037	11485			846,816	1,034,289	(174,035)	1,180,251	1,208,324	
2027						777,736	965,209	18590	6848	11069			814,243	1,001,716	(179,146)	760,756	1,180,862	
2028						746,272	933,745	18087	6659	10653			781,670	969,143	(184,257)	472,777	1,153,400	
2029						714,808	902,281	17583	6470	10237			749,097	936,570	(189,369)	210,181	1,125,938	
2030						683,344	870,817	17079	6281	9821			716,524	903,997	(194,480)	530,267	1,098,476	
2031						636,148	823,621	16575	6092	9405			668,219	855,692	(215,323)	(403,588)	1,071,014	
2032						588,952	776,425	16071	5903	8989			619,914	807,387	(236,166)	1,500,036	1,043,552	
2033						541,756	729,229	15567	5714	8573			571,609	759,082	(257,009)	1,134,564	1,016,091	
2034						494,560	682,033	15063	5525	8157			523,304	710,777	(277,852)	988,839	988,629	
2035						447,364	634,837	14559	5335	7741			474,999	662,472	(298,695)	448,922	961,167	
2036						400,168	587,641	14055	5146	7324			426,694	614,167	(319,538)	241,986	933,705	
2037						352,972	540,445	13551	4957	6908			378,389	565,862	(340,381)	880,208	906,243	
2038						305,776	493,249	13047	4768	6492			330,084	517,557	(361,224)	710,854	878,781	
2039						258,580	446,053	12543	4579	6076			281,779	469,252	(382,067)	379,810	851,319	
2040						211,384	398,857	12039	4390	5660			233,474	420,947	(402,911)	301,645	823,857	
2041						148,456	335,929	11535	4201	5244			169,437	356,910	(439,486)	1,023,679	796,395	
2042						85,528	273,001	11031	4012	4828			105,400	292,873	(476,061)	967,976	768,933	
2043						22,600	210,073	10528	3823	4412			41,363	228,836	(512,636)	(28,143)	741,472	
2044						(6,973)	180,500	10024	3634	3996			10,681	198,154	(515,856)	470,789	714,010	
2045						(6,973)	180,500	9520	3445	3580			9,572	197,045	(489,503)	(604,296)	686,548	
2046						(6,973)	180,500	9016	3256	3164			8,463	195,936	(463,150)	(592,379)	659,086	
2047						(6,973)	180,500	8512	3067	2748			7,354	194,827	(436,797)	(294,493)	631,624	
2048						(6,973)	180,500	8008	2878	2332			6,245	193,718	(410,444)	(573,638)	604,162	
2049						(6,973)	180,500	7504	2689	1916			5,136	192,609	(384,091)	(287,222)	576,700	
2050						(6,973)	180,500	7000	2500	1500			4,027	191,500	(357,738)	(635,292)	549,238	

North-of-the Delta Offstream Storage Project Alternative A
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Historical Period (Estimated from best available data)													
	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Power Resources (GWh)														
SWP Hydro	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742
Hypothetical Hydro Projection (based on historic)														
SWP Renewables	416	450	362	326	307	168	201	167	153	138	224	235	193	249
New Renewables														
Reid Gardner Unit 4	799	1,004	1,632	1,687	1,447	1,324	1,069	1,198	1,206	387	632	808	1,382	1,596
Lodi Energy Center														
Other														
Purchases and Exchanges	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Purchases and Exchangeswith NODOS Alternative A	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Hypothetical Purchases and Exchanges														
ALT- MRTU PURCHASES	(514)	471	856	1,715	2,717	1,017	903	(1,029)	984	(2,271)	(997)	(137)	(3,530)	(829)
Total Resources	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Total Resources with BDCP	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Emissions (mtCO_2e)														
Large Hydro (0 mtCO_2e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 mtCO_2e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 mtCO_2e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 mtCO_2e/GWh)	891,684	1,120,464	1,821,312	1,882,692	1,615,031	1,477,171	1,193,037	1,337,370	1,346,264	431,345	705,825	901,895	1,542,357	1,780,799
Lodi Energy Center (361 mtCO_2e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (varies see back-up)														
Purchases and Exchanges	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Purchases and Exchanges with NODOS Alternative A	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Total Emissions	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
Total Emissions with NODOS Alternative A	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
ALT-MRTU	891,684	1,382,127	2,296,861	2,835,457	3,037,914	2,005,774	1,659,218	1,337,370	1,965,892	431,345	705,825	901,895	1,542,357	1,780,799
Hypothetical Hydro														
Portfolio Emissions Rate	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Portfolio Emissions Rate with NODOS Alternative A	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Load (GWH)														
Sales and Exchanges	5,223	4,202	3,535	3,219	3,491	3,322	3,877	5,904	3,604	7,843	7,081	6,673	10,057	7,170
Net SWP Load	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Net SWP Load with NODOS Alternative A	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Total DWR Emissions	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Total DWR Emissions with NODOS Alternative A	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Average Year-on-year emissions reduction														
Reid Gardner Reduction														
New Renewables (annual-year on year change)														
New Renewables (cumulative)														
Lodi														
Total Calculated Emissions Reductions														
Total Projected Emissions Reductions														
Difference														

ARB Supplied Data-Unspecified Imports

mtCO_2e/GWh	555.5	555.5	555.5	555.5	523.7	519.5	516.0	624.2	629.4	588.7	471.8	547.7	617.3	537.2

North-of-the Delta Offstream Storage Project Alternative A
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Historical Period (Estimated from best available data)							Current Period (Calculated)					Future Period (Projected)					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
Power Resources (GWh)																		
SWP Hydro	5,536	3,310	4,196	4,780	5,307	4,500	6,526	2059	2785	3,008	4,133	3,990	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)													4,496	2,925	3,202	3849	3,917	2,119
SWP Renewables	349	279	359	321	392	352	329	3176	406	394			219	219	219	219	219	219
New Renewables											-	-	36	72	108	144	180	216
Reid Gardner Unit 4	1,789	1,639	1,620	1,603	1,605	1,578	1,537	1327	1127	1,170	901	1,131	900	900	450	-	-	
Lodi Energy Center														304	500	500	500	500
Other								279	161	107		-						
Purchases and Exchanges	10,830	12,137	7,900	6,930	5,990	4,311	4,694	4707	3556	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Purchases and Exchangeswith NODOS Alternative A	10,830	12,137	7,900	6,930	5,990	4,311	4,694	4707	3556	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Hypothetical Purchases and Exchanges													1,372	2,603	2,544	2,311	2,207	3,969
ALT- MRTU PURCHASES	1,516	1,426	2,220	2,471	2,565	1,878	767	2,728	1,410	1,481	2,158							
Total Resources	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	1,996,764	1,829,253	1,807,881	1,789,445	1,791,216	1,760,942	1,714,866	1,481,486	1,257,408	1,306,156	1,005,516		1,004,400	1,004,400	502,200	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	-	-	-	-	-	-	-	-	-	-	-		-	109,744	180,500	180,500	180,500	180,500
Other (varies see back-up)								80,073	46,324	30,593								
Purchases and Exchanges	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046		784,272	635,692	730,958	911,876	896,144	880,412
Purchases and Exchanges with NODOS Alternative A	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046	-	784,272	635,692	730,958	911,876	896,144	880,412
Total Emissions	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**		**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total Emissions with NODOS Alternative A	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**	-	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
ALT-MRTU	2,658,101	2,784,901	2,906,905	3,304,548	3,283,511	2,797,704	2,124,363	2,892,243	2,076,036	1,953,290	1,948,562							
Hypothetical Hydro											1,948,562		1,603,964	2,251,655	1,794,428	1,190,407	1,144,815	1,915,154
Portfolio Emissions Rate	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**		**255**	**249**	**201**	**156**	**153**	**151**
Portfolio Emissions Rate with NODOS Alternative A	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**	**0**	**255**	**249**	**201**	**156**	**153**	**151**
Load (GWH)																		
Sales and Exchanges	9,315	10,711	5,680	4,458	3,425	2,432	3,927	2,258	2,307	1,476	-							
Net SWP Load	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative A	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total DWR Emissions	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	**2,410,018**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total DWR Emissions with NODOS Alternative A	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	-	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Average Year-on-year emissions reduction													(621,346)	(38,836)	(336,178)	(321,282)	(15,732)	(15,732)
Reid Gardner Reduction															(297,266)	(305,550)	-	
New Renewables (annual-year on year change)													(15,732)	(15,732)	(15,732)	(15,732)	(15,732)	(15,732)
New Renewables (cumulative)													(15,732)	(31,464)	(47,196)	(62,928)	(78,660)	(94,392)
Lodi														(23,104)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions													(15,732)	(54,568)	(367,642)	(688,924)	(407,390)	(423,122)
Total Projected Emissions Reductions													(621,346)	(660,182)	(996,360)	(1,317,642)	(1,333,374)	(1,349,106)
Difference													605,614	605,614	628,718	628,718	925,984	925,984

ARB Supplied Data-Unspecified Imports

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
$mtCO_2e$/GWh	436.3	669.9	495.2	613.2	581.9	551.9	533.8	517.1	580.5	437.0	437.0		437.0	437.0	437.0	437.0	437.0	437.0

North-of-the Delta Offstream Storage Project Alternative A
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Future Period (Projected)															
	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Power Resources (GWh)																
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536	3,310	4,196	4,780	5,307	4,500	6,526	*2059*
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	252	288	324	360	432	504	576	648	720	792	864	936	1,008	1,080	1,188	1,296
Reid Gardner Unit 4																
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																
Purchases and Exchanges	1,979	1,943	1,907	1,871	1,799	1,727	1,655	1,583	1,511	1,439	1,367	1,295	1,223	1,151	1,043	935
Purchases and Exchangeswith NODOS Alternative A	1,979	1,943	1,907	1,871	1,799	2,156	2,084	2,012	1,940	1,868	1,796	1,724	1,652	1,580	1,472	1,364
Hypothetical Purchases and Exchanges	3,953	1,784	2,960	466	424	1,036	328	914	48	2,202	1,244	588	(11)	724	(1,410)	2,949
ALT- MRTU PURCHASES																
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**
Emissions ($mtCO_2e$)																
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																
Purchases and Exchanges	864,680	848,948	833,216	817,484	786,020	754,556	723,092	691,628	660,164	628,700	597,236	565,772	534,308	502,844	455,648	408,452
Purchases and Exchanges with NODOS Alternative A	864,680	848,948	833,216	817,484	786,020	942,029	910,565	879,101	847,637	816,173	784,709	753,245	721,781	690,317	643,121	595,925
Total Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**
Total Emissions with NODOS Alternative A	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,122,529**	**1,091,065**	**1,059,601**	**1,028,137**	**996,673**	**965,209**	**933,745**	**902,281**	**870,817**	**823,621**	**776,425**
ALT-MRTU																
Hypothetical Hydro	1,907,756	959,942	1,473,823	384,116	365,678	633,208	323,709	579,770	201,344	1,142,635	724,249	437,379	175,892	497,087	(435,659)	1,469,074
Portfolio Emissions Rate	**149**	**147**	**144**	**142**	**138**	**133**	**129**	**124**	**120**	**115**	**111**	**106**	**102**	**97**	**91**	**84**
Portfolio Emissions Rate with NODOS Alternative A	**149**	**147**	**144**	**142**	**138**	**151**	**146**	**142**	**138**	**134**	**130**	**125**	**121**	**117**	**111**	**104**
Load (GWH)																
Sales and Exchanges																
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative A	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**
Total DWR Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**
Total DWR Emissions with NODOS Alternative A	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,122,529**	**1,091,065**	**1,059,601**	**1,028,137**	**996,673**	**965,209**	**933,745**	**902,281**	**870,817**	**823,621**	**776,425**
Average Year-on-year emissions reduction	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)
Reid Gardner Reduction																
New Renewables (annual-year on year change)	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)
New Renewables (cumulative)	(110,124)	(125,856)	(141,588)	(157,320)	(188,784)	(220,248)	(251,712)	(283,176)	(314,640)	(346,104)	(377,568)	(409,032)	(440,496)	(471,960)	(519,156)	(566,352)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(438,854)	(454,586)	(470,318)	(486,050)	(517,514)	(548,978)	(580,442)	(611,906)	(643,370)	(674,834)	(706,298)	(737,762)	(769,226)	(800,690)	(847,886)	(895,082)
Total Projected Emissions Reductions	(1,364,838)	(1,380,570)	(1,396,302)	(1,412,034)	(1,443,498)	(1,474,962)	(1,506,426)	(1,537,890)	(1,569,354)	(1,600,818)	(1,632,282)	(1,663,746)	(1,695,210)	(1,726,674)	(1,773,870)	(1,821,066)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984

ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

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North-of-the Delta Offstream Storage Project Alternative A
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Future Period (Projected)

	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Power Resources (GWh)																		
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	*2785*	3,008	4,133	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	1,404	1,512	1,620	1,728	1,836	1,944	2,052	2,160	2,304	2,448	2,592	2,660	2,660	2,660	2,660	2,660	2,660	2,660
Reid Gardner Unit 4																		
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																		
Purchases and Exchanges	827	719	611	503	395	287	179	71	(73)	(217)	(361)	(429)	(429)	(429)	(429)	(429)	(429)	(429)
Purchases and Exchangeswith NODOS Alternative A	1,256	1,148	1,040	932	824	716	608	500	356	212	68	-	-	-	-	-	-	-
Hypothetical Purchases and Exchanges	2,115	1,784	551	80	1,543	1,158	403	227	1,881	1,757	(520)	624	(1,834)	(1,804)	(1,120)	(1,756)	(1,098)	(1,892)
ALT- MRTU PURCHASES																		
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																		
Purchases and Exchanges	361,256	314,060	266,864	219,668	172,472	125,276	78,080	30,884	(32,044)	(94,972)	(157,900)	(187,473)	(187,473)	(187,473)	(187,473)	(187,473)	(187,473)	(187,473)
Purchases and Exchanges with NODOS Alternative A	548,729	501,533	454,337	407,141	359,945	312,749	265,553	218,357	155,429	92,501	29,573	-	-	-	-	-	-	-
Total Emissions	**541,756**	**494,560**	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**
Total Emissions with NODOS Alternative A	**729,229**	**682,033**	**634,837**	**587,641**	**540,445**	**493,249**	**446,053**	**398,857**	**335,929**	**273,001**	**210,073**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
ALT-MRTU																		
Hypothetical Hydro	1,104,711	960,095	421,287	215,460	854,791	686,546	356,611	279,555	1,002,698	948,104	(46,906)	453,135	(620,841)	(607,815)	(308,820)	(586,856)	(299,331)	(646,292)
Portfolio Emissions Rate	**77**	**70**	**64**	**57**	**50**	**44**	**37**	**30**	**21**	**12**	**3**	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**	**-1**
Portfolio Emissions Rate with NODOS Alternative A	**98**	**92**	**85**	**79**	**73**	**66**	**60**	**54**	**45**	**37**	**28**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
Load (GWH)																		
Sales and Exchanges																		
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative A	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**	**7,452**
Total DWR Emissions	**541,756**	**494,560**	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**	**(6,973)**
Total DWR Emissions with NODOS Alternative A	**729,229**	**682,033**	**634,837**	**587,641**	**540,445**	**493,249**	**446,053**	**398,857**	**335,929**	**273,001**	**210,073**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
Average Year-on-year emissions reduction	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(29,573)	-	-	-	-	-	-
Reid Gardner Reduction																		
New Renewables (annual-year on year change)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)
New Renewables (cumulative)	(613,548)	(660,744)	(707,940)	(755,136)	(802,332)	(849,528)	(896,724)	(943,920)	(1,006,848)	(1,069,776)	(1,132,704)	(1,195,632)	(1,258,560)	(1,321,488)	(1,384,416)	(1,447,344)	(1,510,272)	(1,573,200)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(942,278)	(989,474)	(1,036,670)	(1,083,866)	(1,131,062)	(1,178,258)	(1,225,454)	(1,272,650)	(1,335,578)	(1,398,506)	(1,461,434)	(1,524,362)	(1,587,290)	(1,650,218)	(1,713,146)	(1,776,074)	(1,839,002)	(1,901,930)
Total Projected Emissions Reductions	(1,868,262)	(1,915,458)	(1,962,654)	(2,009,850)	(2,057,046)	(2,104,242)	(2,151,438)	(2,198,634)	(2,261,562)	(2,324,490)	(2,387,418)	(2,416,991)	(2,416,991)	(2,416,991)	(2,416,991)	(2,416,991)	(2,416,991)	(2,416,991)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	892,629	829,701	766,773	703,845	640,917	577,989	515,061

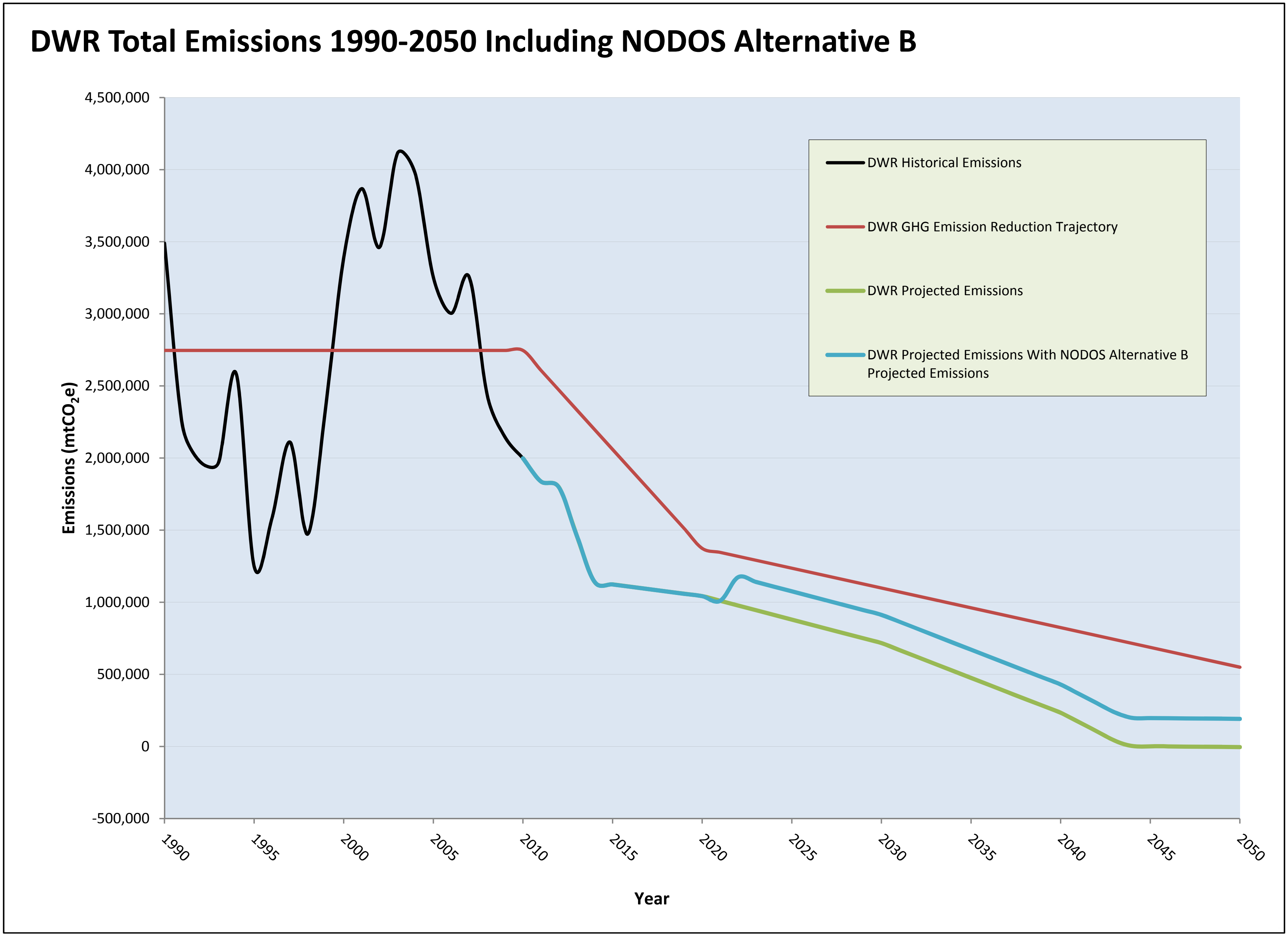
ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

Alternative B

Historical, Projected Without and With Project

1990 - 2050



DWR Total Emissions 1990-2050 Including NODOS Alternative B
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
Emissions (mtCO2e)
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Year
DWR Historical Emissions
DWR GHG Emission Reduction Trajectory
DWR Projected Emissions
DWR Projected Emissions With NODOS Alternative B Projected Emissions

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North-of-the Delta Offstream Storage Project Alternative B Total Emissions - Historical and Projected, 1990-2050

- Historical estimates done by PARO
- Current Emissions Calculations
- Future Projections done by PARO
- Future Projections done by Climate Adaptation Branch
- DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMaintenance. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative B Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
1986	1,749,503	891,684	28,200	8,171	17,525						1,803,399	945,580						
1987	1,991,296	1,382,127	28,200	8,171	17,525						2,045,192	1,436,023						
1988	2,689,673	2,296,861	28,200	8,171	17,525						2,743,569	2,350,757						
1989	3,245,116	2,835,457	28,200	8,171	17,525						3,299,012	2,889,353						
1990	3,436,218	3,037,914	28,200	8,171	17,525						3,490,114	3,091,810					2,746,191	2,367,045
1991	2,172,342	2,005,774	28,000	8,171	17,525						2,226,038	2,059,470					2,746,191	2,367,045
1992	1,918,826	1,659,218	27,700	8,171	17,525						1,972,222	1,712,614					2,746,191	2,367,045
1993	1,911,030	1,337,370	27,500	8,171	17,525						1,964,226	1,390,566					2,746,191	2,367,045
1994	2,532,737	1,965,892	27,200	8,171	17,525						2,585,633	2,018,788					2,746,191	2,367,045
1995	1,196,658	431,345	26,900	8,171	17,525						1,249,254	483,941					2,746,191	2,367,045
1996	1,532,355	705,825	26,700	8,171	17,525						1,584,751	758,221					2,746,191	2,367,045
1997	2,058,493	901,895	26,400	8,171	17,525						2,110,589	953,991					2,746,191	2,367,045
1998	1,421,625	1,542,357	26,200	8,171	17,525						1,473,521	1,594,253					2,746,191	2,367,045
1999	2,310,173	1,780,799	25,900	8,171	17,525						2,361,769	1,832,395					2,746,191	2,367,045
2000	3,338,492	2,658,101	25,600	8,171	17,525						3,389,788	2,709,397					2,746,191	2,367,045
2001	3,816,900	2,784,901	25,400	8,171	17,525						3,867,996	2,835,997					2,746,191	2,367,045
2002	3,411,156	2,906,905	25,100	8,171	17,525						3,461,952	2,957,701					2,746,191	2,367,045
2003	4,063,664	3,304,548	24,900	8,171	17,525						4,114,260	3,355,144					2,746,191	2,367,045
2004	3,916,983	3,283,511	24,600	8,171	17,525						3,967,279	3,333,807					2,746,191	2,367,045
2005	3,202,498	2,797,704	24,400	8,171	17,525						3,252,594	2,847,800					2,746,191	2,367,045
2006	2,954,078	2,124,363	24,100	8,171	17,525						3,003,874	2,174,159					2,746,191	2,367,045
2007	3,214,498	2,892,243	23,800	10,809	6,142						3,255,249	2,932,994					2,746,191	2,367,045
2008	2,400,921	2,076,036	23,600	6,803	7,644						2,438,968	2,114,083					2,746,191	2,367,045
2009	2,076,089	1,953,290	23,600	6,901	38,789						2,145,379	2,022,580					2,746,191	2,367,045
2010	1,948,562	1,948,562	No data	No data	No data			23600	8,171	17,525	1,997,858	1,997,858	1,997,858	1,997,858	(748,333)	1,997,858	2,746,191	2,367,045
2011						1,788,672	1,788,672	23452	8171	17171			1,837,465	1,837,465	(771,416)	1,652,757	2,608,881	
2012						1,749,836	1,749,836	23304	8171	16816			1,798,127	1,798,127	(673,445)	2,299,946	2,471,572	
2013						1,413,658	1,413,658	23155	8171	16462			1,461,446	1,461,446	(872,816)	1,842,216	2,334,262	
2014						1,092,376	1,092,376	23007	8171	16107			1,139,661	1,139,661	(1,057,291)	1,237,693	2,196,953	
2015						1,076,644	1,076,644	22859	8171	15753			1,123,427	1,123,427	(936,216)	1,191,598	2,059,643	
2016						1,060,912	1,060,912	22711	8171	15399			1,107,192	1,107,192	(815,141)	1,961,434	1,922,334	
2017						1,045,180	1,045,180	22563	8171	15044			1,090,958	1,090,958	(694,066)	1,953,533	1,785,024	
2018						1,029,448	1,029,448	22414	8171	14690			1,074,723	1,074,723	(572,992)	1,005,217	1,647,714	
2019						1,013,716	1,013,716	22266	8171	14335			1,058,488	1,058,488	(451,917)	1,518,596	1,510,405	
2020						997,984	997,984	22118	8171	13981			1,042,254	1,042,254	(330,842)	428,386	1,373,095	
2021						966,520	966,520	21614	7982	13565			1,009,681	1,009,681	(335,953)	408,839	1,345,633	

North-of-the Delta Offstream Storage Project Alternative B Total Emissions - Historical and Projected, 1990-2050

Historical estimates done by PARO
Current Emissions Calculations
Future Projections done by PARO
Future Projections done by Climate Adaptation Branch
DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMainten. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative B Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
2022						935,056	1,131,269	21110	7793	13149			977,108	1,173,321	(144,851)	675,260	1,318,172	
2023						903,592	1,099,805	20606	7604	12733			944,535	1,140,748	(149,962)	364,652	1,290,710	
2024						872,128	1,068,341	20102	7415	12317			911,962	1,108,175	(155,073)	619,604	1,263,248	
2025						840,664	1,036,877	19598	7226	11901			879,389	1,075,602	(160,184)	240,069	1,235,786	
2026						809,200	1,005,413	19094	7037	11485			846,816	1,043,029	(165,295)	1,180,251	1,208,324	
2027						777,736	973,949	18590	6848	11069			814,243	1,010,456	(170,406)	760,756	1,180,862	
2028						746,272	942,485	18087	6659	10653			781,670	977,883	(175,517)	472,777	1,153,400	
2029						714,808	911,021	17583	6470	10237			749,097	945,310	(180,629)	210,181	1,125,938	
2030						683,344	879,557	17079	6281	9821			716,524	912,737	(185,740)	530,267	1,098,476	
2031						636,148	832,361	16575	6092	9405			668,219	864,432	(206,583)	(403,588)	1,071,014	
2032						588,952	785,165	16071	5903	8989			619,914	816,127	(227,426)	1,500,036	1,043,552	
2033						541,756	737,969	15567	5714	8573			571,609	767,822	(248,269)	1,134,564	1,016,091	
2034						494,560	690,773	15063	5525	8157			523,304	719,517	(269,112)	988,839	988,629	
2035						447,364	643,577	14559	5335	7741			474,999	671,212	(289,955)	448,922	961,167	
2036						400,168	596,381	14055	5146	7324			426,694	622,907	(310,798)	241,986	933,705	
2037						352,972	549,185	13551	4957	6908			378,389	574,602	(331,641)	880,208	906,243	
2038						305,776	501,989	13047	4768	6492			330,084	526,297	(352,484)	710,854	878,781	
2039						258,580	454,793	12543	4579	6076			281,779	477,992	(373,327)	379,810	851,319	
2040						211,384	407,597	12039	4390	5660			233,474	429,687	(394,171)	301,645	823,857	
2041						148,456	344,669	11535	4201	5244			169,437	365,650	(430,746)	1,023,679	796,395	
2042						85,528	281,741	11031	4012	4828			105,400	301,613	(467,321)	967,976	768,933	
2043						22,600	218,813	10528	3823	4412			41,363	237,576	(503,896)	(28,143)	741,472	
2044						(15,713)	180,500	10024	3634	3996			1,941	198,154	(515,856)	462,049	714,010	
2045						(15,713)	180,500	9520	3445	3580			832	197,045	(489,503)	(613,036)	686,548	
2046						(15,713)	180,500	9016	3256	3164			(277)	195,936	(463,150)	(601,119)	659,086	
2047						(15,713)	180,500	8512	3067	2748			(1,386)	194,827	(436,797)	(303,233)	631,624	
2048						(15,713)	180,500	8008	2878	2332			(2,495)	193,718	(410,444)	(582,378)	604,162	
2049						(15,713)	180,500	7504	2689	1916			(3,604)	192,609	(384,091)	(295,962)	576,700	
2050						(15,713)	180,500	7000	2500	1500			(4,713)	191,500	(357,738)	(644,032)	549,238	

North-of-the Delta Offstream Storage Project Alternative B
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Historical Period (Estimated from best available data)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Power Resources (GWh)														
SWP Hydro	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742
Hypothetical Hydro Projection (based on historic)														
SWP Renewables	416	450	362	326	307	168	201	167	153	138	224	235	193	249
New Renewables														
Reid Gardner Unit 4	799	1,004	1,632	1,687	1,447	1,324	1,069	1,198	1,206	387	632	808	1,382	1,596
Lodi Energy Center														
Other														
Purchases and Exchanges	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Purchases and Exchangeswith NODOS Alternative B	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Hypothetical Purchases and Exchanges														
ALT- MRTU PURCHASES	(514)	471	856	1,715	2,717	1,017	903	(1,029)	984	(2,271)	(997)	(137)	(3,530)	(829)
Total Resources	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Total Resources with BDCP	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Emissions ($mtCO_2e$)														
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	891,684	1,120,464	1,821,312	1,882,692	1,615,031	1,477,171	1,193,037	1,337,370	1,346,264	431,345	705,825	901,895	1,542,357	1,780,799
Lodi Energy Center (361 $mtCO_2e$)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (varies see back-up)														
Purchases and Exchanges	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Purchases and Exchanges with NODOS Alternative B	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Total Emissions	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
Total Emissions with NODOS Alternative B	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
ALT-MRTU	891,684	1,382,127	2,296,861	2,835,457	3,037,914	2,005,774	1,659,218	1,337,370	1,965,892	431,345	705,825	901,895	1,542,357	1,780,799
Hypothetical Hydro														
Portfolio Emissions Rate	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Portfolio Emissions Rate with NODOS Alternative B	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Load (GWH)														
Sales and Exchanges	5,223	4,202	3,535	3,219	3,491	3,322	3,877	5,904	3,604	7,843	7,081	6,673	10,057	7,170
Net SWP Load	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Net SWP Load with NODOS Alternative B	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Total DWR Emissions	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Total DWR Emissions with NODOS Alternative B	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Average Year-on-year emissions reduction														
Reid Gardner Reduction														
New Renewables (annual-year on year change)														
New Renewables (cumulative)														
Lodi														
Total Calculated Emissions Reductions														
Total Projected Emissions Reductions														
Difference														

ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	555.5	555.5	555.5	555.5	523.7	519.5	516.0	624.2	629.4	588.7	471.8	547.7	617.3	537.2

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North-of-the Delta Offstream Storage Project Alternative B
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Historical Period (Estimated from best available data)							Current Period (Calculated)					Future Period (Projected)					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
Power Resources (GWh)																		
SWP Hydro	5,536	3,310	4,196	4,780	5,307	4,500	6,526	*2059*	*2785*	3,008	4,133	3,990	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)													4,496	2,925	3,202	3849	3,917	2,119
SWP Renewables	349	279	359	321	392	352	329	*3176*	*406*	394			219	219	219	219	219	219
New Renewables											-	-	36	72	108	144	180	216
Reid Gardner Unit 4	1,789	1,639	1,620	1,603	1,605	1,578	1,537	*1327*	*1127*	1,170	901	1,131	900	900	450	-	-	
Lodi Energy Center														304	500	500	500	500
Other								*279*	*161*	107		-						
Purchases and Exchanges	10,830	12,137	7,900	6,930	5,990	4,311	4,694	*4707*	*3556*	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Purchases and Exchangeswith NODOS Alternative B	10,830	12,137	7,900	6,930	5,990	4,311	4,694	*4707*	*3556*	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Hypothetical Purchases and Exchanges													1,372	2,603	2,544	2,311	2,207	3,969
ALT- MRTU PURCHASES	1,516	1,426	2,220	2,471	2,565	1,878	767	2,728	1,410	1,481	2,158							
Total Resources	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	1,996,764	1,829,253	1,807,881	1,789,445	1,791,216	1,760,942	1,714,866	1,481,486	1,257,408	1,306,156	1,005,516		1,004,400	1,004,400	502,200	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	-	-	-	-	-	-	-	-	-	-	-		-	109,744	180,500	180,500	180,500	180,500
Other (varies see back-up)								80,073	46,324	30,593								
Purchases and Exchanges	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046		784,272	635,692	730,958	911,876	896,144	880,412
Purchases and Exchanges with NODOS Alternative B	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046	-	784,272	635,692	730,958	911,876	896,144	880,412
Total Emissions	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**		**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total Emissions with NODOS Alternative B	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**	**-**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
ALT-MRTU	2,658,101	2,784,901	2,906,905	3,304,548	3,283,511	2,797,704	2,124,363	2,892,243	2,076,036	1,953,290	1,948,562							
Hypothetical Hydro											1,948,562		1,603,964	2,251,655	1,794,428	1,190,407	1,144,815	1,915,154
Portfolio Emissions Rate	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**		**255**	**249**	**201**	**156**	**153**	**151**
Portfolio Emissions Rate with NODOS Alternative B	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**	**0**	**255**	**249**	**201**	**156**	**153**	**151**
Load (GWH)																		
Sales and Exchanges	9,315	10,711	5,680	4,458	3,425	2,432	3,927	2,258	2,307	1,476	-							
Net SWP Load	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative B	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total DWR Emissions	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	**2,410,018**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total DWR Emissions with NODOS Alternative B	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	**-**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Average Year-on-year emissions reduction													(621,346)	(38,836)	(336,178)	(321,282)	(15,732)	(15,732)
Reid Gardner Reduction															(297,266)	(305,550)	-	
New Renewables (annual-year on year change)													(15,732)	(15,732)	(15,732)	(15,732)	(15,732)	(15,732)
New Renewables (cumulative)													(15,732)	(31,464)	(47,196)	(62,928)	(78,660)	(94,392)
Lodi														(23,104)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions													(15,732)	(54,568)	(367,642)	(688,924)	(407,390)	(423,122)
Total Projected Emissions Reductions													(621,346)	(660,182)	(996,360)	(1,317,642)	(1,333,374)	(1,349,106)
Difference													605,614	605,614	628,718	628,718	925,984	925,984

ARB Supplied Data-Unspecified Imports

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
$mtCO_2e$/GWh	436.3	669.9	495.2	613.2	581.9	551.9	533.8	517.1	580.5	437.0	437.0		437.0	437.0	437.0	437.0	437.0	437.0

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North-of-the Delta Offstream Storage Project Alternative B
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Future Period (Projected)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032
Power Resources (GWh)																
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536	3,310	4,196	4,780	5,307	4,500	6,526	2059
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	252	288	324	360	432	504	576	648	720	792	864	936	1,008	1,080	1,188	1,296
Reid Gardner Unit 4																
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																
Purchases and Exchanges	1,979	1,943	1,907	1,871	1,799	1,727	1,655	1,583	1,511	1,439	1,367	1,295	1,223	1,151	1,043	935
Purchases and Exchangeswith NODOS Alternative B	1,979	1,943	1,907	1,871	1,799	2,176	2,104	2,032	1,960	1,888	1,816	1,744	1,672	1,600	1,492	1,384
Hypothetical Purchases and Exchanges	3,953	1,784	2,960	466	424	1,036	328	914	48	2,202	1,244	588	(11)	724	(1,410)	2,949
ALT- MRTU PURCHASES																
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**
Emissions ($mtCO_2e$)																
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																
Purchases and Exchanges	864,680	848,948	833,216	817,484	786,020	754,556	723,092	691,628	660,164	628,700	597,236	565,772	534,308	502,844	455,648	408,452
Purchases and Exchanges with NODOS Alternative B	864,680	848,948	833,216	817,484	786,020	950,769	919,305	887,841	856,377	824,913	793,449	761,985	730,521	699,057	651,861	604,665
Total Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**
Total Emissions with NODOS Alternative B	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,131,269**	**1,099,805**	**1,068,341**	**1,036,877**	**1,005,413**	**973,949**	**942,485**	**911,021**	**879,557**	**832,361**	**785,165**
ALT-MRTU																
Hypothetical Hydro	1,907,756	959,942	1,473,823	384,116	365,678	633,208	323,709	579,770	201,344	1,142,635	724,249	437,379	175,892	497,087	(435,659)	1,469,074
Portfolio Emissions Rate	**149**	**147**	**144**	**142**	**138**	**133**	**129**	**124**	**120**	**115**	**111**	**106**	**102**	**97**	**91**	**84**
Portfolio Emissions Rate with NODOS Alternative B	**149**	**147**	**144**	**142**	**138**	**151**	**147**	**143**	**139**	**135**	**130**	**126**	**122**	**118**	**111**	**105**
Load (GWH)																
Sales and Exchanges																
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative B	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**
Total DWR Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**
Total DWR Emissions with NODOS Alternative B	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,131,269**	**1,099,805**	**1,068,341**	**1,036,877**	**1,005,413**	**973,949**	**942,485**	**911,021**	**879,557**	**832,361**	**785,165**
Average Year-on-year emissions reduction	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)
Reid Gardner Reduction																
New Renewables (annual-year on year change)	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)
New Renewables (cumulative)	(110,124)	(125,856)	(141,588)	(157,320)	(188,784)	(220,248)	(251,712)	(283,176)	(314,640)	(346,104)	(377,568)	(409,032)	(440,496)	(471,960)	(519,156)	(566,352)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(438,854)	(454,586)	(470,318)	(486,050)	(517,514)	(548,978)	(580,442)	(611,906)	(643,370)	(674,834)	(706,298)	(737,762)	(769,226)	(800,690)	(847,886)	(895,082)
Total Projected Emissions Reductions	(1,364,838)	(1,380,570)	(1,396,302)	(1,412,034)	(1,443,498)	(1,474,962)	(1,506,426)	(1,537,890)	(1,569,354)	(1,600,818)	(1,632,282)	(1,663,746)	(1,695,210)	(1,726,674)	(1,773,870)	(1,821,066)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984

ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.

North-of-the Delta Offstream Storage Project Alternative B
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Future Period (Projected)

	2033	2034	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Power Resources (GWh)																		
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	*2785*	3,008	4,133	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	1,404	1,512	1,620	1,728	1,836	1,944	2,052	2,160	2,304	2,448	2,592	2,680	2,680	2,680	2,680	2,680	2,680	2,680
Reid Gardner Unit 4																		
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																		
Purchases and Exchanges	827	719	611	503	395	287	179	71	(73)	(217)	(361)	(449)	(449)	(449)	(449)	(449)	(449)	(449)
Purchases and Exchangeswith NODOS Alternative B	1,276	1,168	1,060	952	844	736	628	520	376	232	88	-	-	-	-	-	-	-
Hypothetical Purchases and Exchanges	2,115	1,784	551	80	1,543	1,158	403	227	1,881	1,757	(520)	604	(1,854)	(1,824)	(1,140)	(1,776)	(1,118)	(1,912)
ALT- MRTU PURCHASES																		
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																		
Purchases and Exchanges	361,256	314,060	266,864	219,668	172,472	125,276	78,080	30,884	(32,044)	(94,972)	(157,900)	(196,213)	(196,213)	(196,213)	(196,213)	(196,213)	(196,213)	(196,213)
Purchases and Exchanges with NODOS Alternative B	557,469	510,273	463,077	415,881	368,685	321,489	274,293	227,097	164,169	101,241	38,313	-	-	-	-	-	-	-
Total Emissions	**541,756**	**494,560**	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**
Total Emissions with NODOS Alternative B	**737,969**	**690,773**	**643,577**	**596,381**	**549,185**	**501,989**	**454,793**	**407,597**	**344,669**	**281,741**	**218,813**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
ALT-MRTU																		
Hypothetical Hydro	1,104,711	960,095	421,287	215,460	854,791	686,546	356,611	279,555	1,002,698	948,104	(46,906)	444,395	(629,581)	(616,555)	(317,560)	(595,596)	(308,071)	(655,032)
Portfolio Emissions Rate	**77**	**70**	**64**	**57**	**50**	**44**	**37**	**30**	**21**	**12**	**3**	**-2**	**-2**	**-2**	**-2**	**-2**	**-2**	**-2**
Portfolio Emissions Rate with NODOS Alternative B	**99**	**92**	**86**	**80**	**73**	**67**	**61**	**55**	**46**	**38**	**29**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
Load (GWH)																		
Sales and Exchanges																		
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative B	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**	**7,472**
Total DWR Emissions	**541,756**	**494,560**	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**	**(15,713)**
Total DWR Emissions with NODOS Alternative B	**737,969**	**690,773**	**643,577**	**596,381**	**549,185**	**501,989**	**454,793**	**407,597**	**344,669**	**281,741**	**218,813**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
Average Year-on-year emissions reduction	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(38,313)	-	-	-	-	-	-
Reid Gardner Reduction																		
New Renewables (annual-year on year change)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)
New Renewables (cumulative)	(613,548)	(660,744)	(707,940)	(755,136)	(802,332)	(849,528)	(896,724)	(943,920)	(1,006,848)	(1,069,776)	(1,132,704)	(1,195,632)	(1,258,560)	(1,321,488)	(1,384,416)	(1,447,344)	(1,510,272)	(1,573,200)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(942,278)	(989,474)	(1,036,670)	(1,083,866)	(1,131,062)	(1,178,258)	(1,225,454)	(1,272,650)	(1,335,578)	(1,398,506)	(1,461,434)	(1,524,362)	(1,587,290)	(1,650,218)	(1,713,146)	(1,776,074)	(1,839,002)	(1,901,930)
Total Projected Emissions Reductions	(1,868,262)	(1,915,458)	(1,962,654)	(2,009,850)	(2,057,046)	(2,104,242)	(2,151,438)	(2,198,634)	(2,261,562)	(2,324,490)	(2,387,418)	(2,425,731)	(2,425,731)	(2,425,731)	(2,425,731)	(2,425,731)	(2,425,731)	(2,425,731)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	901,369	838,441	775,513	712,585	649,657	586,729	523,801

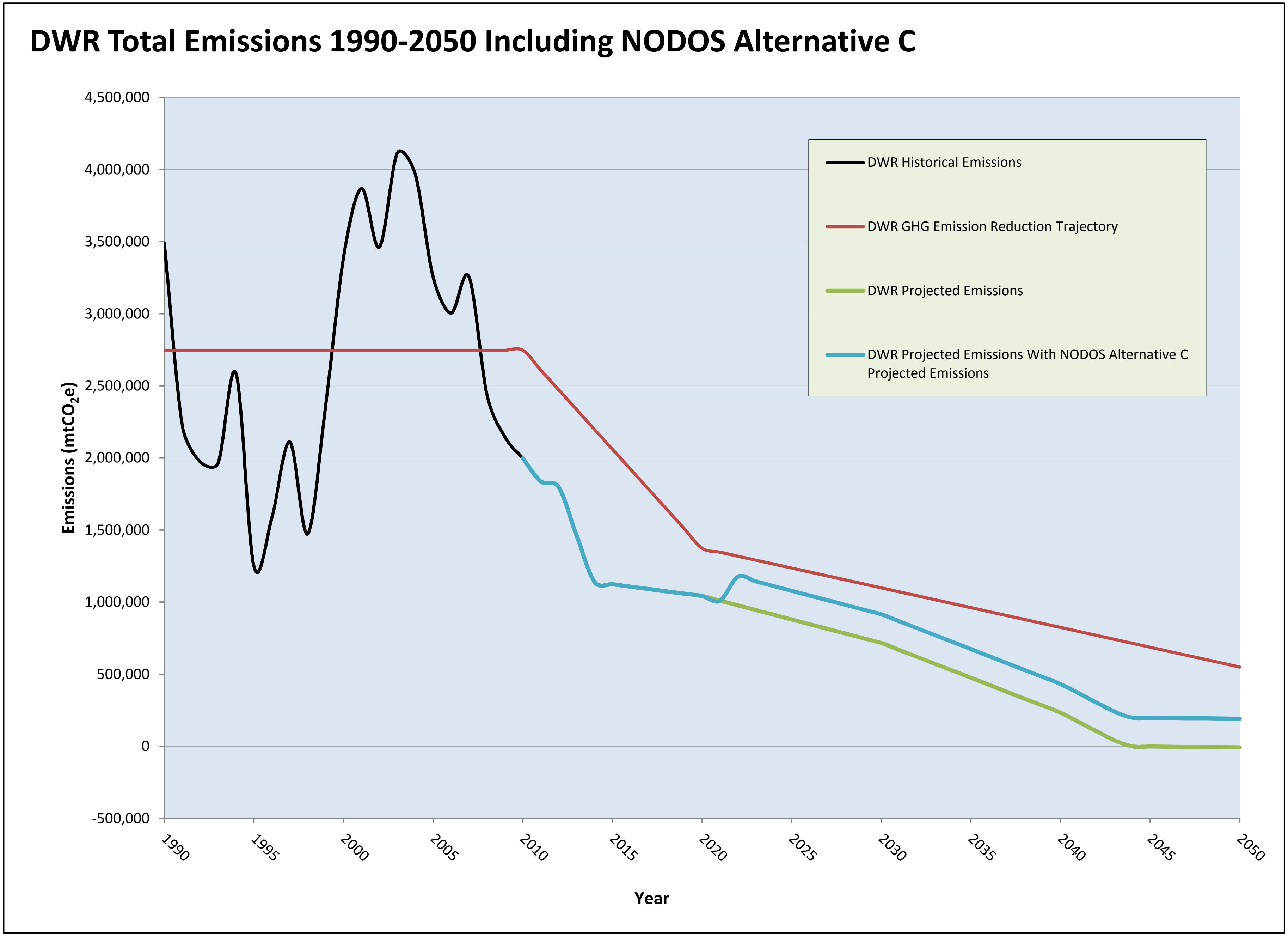
ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

Alternative C

Historical, Projected Without and With Project

1990 - 2050


DWR Total Emissions 1990-2050 Including NODOS Alternative C
4,500,000
4,000,000
3,500,000
3,000,000
2,500,000
2,000,000
1,500,000
1,000,000
500,000
0
-500,000
Emissions (mtCO2e)
1990
1995
2000
2005
2010
2015
2020
2025
2030
2035
2040
2045
2050
Year
DWR Historical Emissions
DWR GHG Emission Reduction Trajectory
DWR Projected Emissions
DWR Projected Emissions With NODOS Alternative C Projected Emissions

North-of-the Delta Offstream Storage Project Alternative C Total Emissions - Historical and Projected, 1990-2050

- Historical estimates done by PARO
- Current Emissions Calculations
- Future Projections done by PARO
- Future Projections done by Climate Adaptation Branch
- DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMaintenance. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative C Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
1986	1,749,503	891,684	28,200	8,171	17,525						1,803,399	945,580						
1987	1,991,296	1,382,127	28,200	8,171	17,525						2,045,192	1,436,023						
1988	2,689,673	2,296,861	28,200	8,171	17,525						2,743,569	2,350,757						
1989	3,245,116	2,835,457	28,200	8,171	17,525						3,299,012	2,889,353						
1990	3,436,218	3,037,914	28,200	8,171	17,525						3,490,114	3,091,810					2,746,191	2,367,045
1991	2,172,342	2,005,774	28,000	8,171	17,525						2,226,038	2,059,470					2,746,191	2,367,045
1992	1,918,826	1,659,218	27,700	8,171	17,525						1,972,222	1,712,614					2,746,191	2,367,045
1993	1,911,030	1,337,370	27,500	8,171	17,525						1,964,226	1,390,566					2,746,191	2,367,045
1994	2,532,737	1,965,892	27,200	8,171	17,525						2,585,633	2,018,788					2,746,191	2,367,045
1995	1,196,658	431,345	26,900	8,171	17,525						1,249,254	483,941					2,746,191	2,367,045
1996	1,532,355	705,825	26,700	8,171	17,525						1,584,751	758,221					2,746,191	2,367,045
1997	2,058,493	901,895	26,400	8,171	17,525						2,110,589	953,991					2,746,191	2,367,045
1998	1,421,625	1,542,357	26,200	8,171	17,525						1,473,521	1,594,253					2,746,191	2,367,045
1999	2,310,173	1,780,799	25,900	8,171	17,525						2,361,769	1,832,395					2,746,191	2,367,045
2000	3,338,492	2,658,101	25,600	8,171	17,525						3,389,788	2,709,397					2,746,191	2,367,045
2001	3,816,900	2,784,901	25,400	8,171	17,525						3,867,996	2,835,997					2,746,191	2,367,045
2002	3,411,156	2,906,905	25,100	8,171	17,525						3,461,952	2,957,701					2,746,191	2,367,045
2003	4,063,664	3,304,548	24,900	8,171	17,525						4,114,260	3,355,144					2,746,191	2,367,045
2004	3,916,983	3,283,511	24,600	8,171	17,525						3,967,279	3,333,807					2,746,191	2,367,045
2005	3,202,498	2,797,704	24,400	8,171	17,525						3,252,594	2,847,800					2,746,191	2,367,045
2006	2,954,078	2,124,363	24,100	8,171	17,525						3,003,874	2,174,159					2,746,191	2,367,045
2007	3,214,498	2,892,243	23,800	10,809	6,142						3,255,249	2,932,994					2,746,191	2,367,045
2008	2,400,921	2,076,036	23,600	6,803	7,644						2,438,968	2,114,083					2,746,191	2,367,045
2009	2,076,089	1,953,290	23,600	6,901	38,789						2,145,379	2,022,580					2,746,191	2,367,045
2010	1,948,562	1,948,562	No data	No data	No data			23600	8,171	17,525	1,997,858	1,997,858	1,997,858	1,997,858	(748,333)	1,997,858	2,746,191	2,367,045
2011						1,788,672	1,788,672	23452	8171	17171			1,837,465	1,837,465	(771,416)	1,652,757	2,608,881	
2012						1,749,836	1,749,836	23304	8171	16816			1,798,127	1,798,127	(673,445)	2,299,946	2,471,572	
2013						1,413,658	1,413,658	23155	8171	16462			1,461,446	1,461,446	(872,816)	1,842,216	2,334,262	
2014						1,092,376	1,092,376	23007	8171	16107			1,139,661	1,139,661	(1,057,291)	1,237,693	2,196,953	
2015						1,076,644	1,076,644	22859	8171	15753			1,123,427	1,123,427	(936,216)	1,191,598	2,059,643	
2016						1,060,912	1,060,912	22711	8171	15399			1,107,192	1,107,192	(815,141)	1,961,434	1,922,334	
2017						1,045,180	1,045,180	22563	8171	15044			1,090,958	1,090,958	(694,066)	1,953,533	1,785,024	
2018						1,029,448	1,029,448	22414	8171	14690			1,074,723	1,074,723	(572,992)	1,005,217	1,647,714	
2019						1,013,716	1,013,716	22266	8171	14335			1,058,488	1,058,488	(451,917)	1,518,596	1,510,405	
2020						997,984	997,984	22118	8171	13981			1,042,254	1,042,254	(330,842)	428,386	1,373,095	
2021						966,520	966,520	21614	7982	13565			1,009,681	1,009,681	(335,953)	408,839	1,345,633	

North-of-the Delta Offstream Storage Project Alternative C Total Emissions - Historical and Projected, 1990-2050

- Historical estimates done by PARO
- Current Emissions Calculations
- Future Projections done by PARO
- Future Projections done by Climate Adaptation Branch
- DWR Target Emissions

Year	SWP Historical Emissions	SWP Historical Emissions (MRTU)	Historical Construction Emissions	Historical Mainten. Emissions	Biz Act. Emis	SWP Projected Emissions	SWP + NODOS Projected Emissions (original RPP)	Projected Construction Emis	ProjectedMainten. Emis	Projected Biz Act. Emis	DWR Historical Emissions	DWR Historical Emissions (MRTU)	DWR Projected Emissions	DWR Projected Emissions With NODOS Alternative C Projected Emissions	Emissions Gap	DWR Projected Emissions (hydrologic variability)	DWR GHG Emission Reduction Trajectory	1990 Level (MRTU)
2022						935,056	1,133,891	21110	7793	13149			977,108	1,175,943	(142,229)	675,260	1,318,172	
2023						903,592	1,102,427	20606	7604	12733			944,535	1,143,370	(147,340)	364,652	1,290,710	
2024						872,128	1,070,963	20102	7415	12317			911,962	1,110,797	(152,451)	619,604	1,263,248	
2025						840,664	1,039,499	19598	7226	11901			879,389	1,078,224	(157,562)	240,069	1,235,786	
2026						809,200	1,008,035	19094	7037	11485			846,816	1,045,651	(162,673)	1,180,251	1,208,324	
2027						777,736	976,571	18590	6848	11069			814,243	1,013,078	(167,784)	760,756	1,180,862	
2028						746,272	945,107	18087	6659	10653			781,670	980,505	(172,895)	472,777	1,153,400	
2029						714,808	913,643	17583	6470	10237			749,097	947,932	(178,007)	210,181	1,125,938	
2030						683,344	882,179	17079	6281	9821			716,524	915,359	(183,118)	530,267	1,098,476	
2031						636,148	834,983	16575	6092	9405			668,219	867,054	(203,961)	(403,588)	1,071,014	
2032						588,952	787,787	16071	5903	8989			619,914	818,749	(224,804)	1,500,036	1,043,552	
2033						541,756	740,591	15567	5714	8573			571,609	770,444	(245,647)	1,134,564	1,016,091	
2034						494,560	693,395	15063	5525	8157			523,304	722,139	(266,490)	988,839	988,629	
2035						447,364	646,199	14559	5335	7741			474,999	673,834	(287,333)	448,922	961,167	
2036						400,168	599,003	14055	5146	7324			426,694	625,529	(308,176)	241,986	933,705	
2037						352,972	551,807	13551	4957	6908			378,389	577,224	(329,019)	880,208	906,243	
2038						305,776	504,611	13047	4768	6492			330,084	528,919	(349,862)	710,854	878,781	
2039						258,580	457,415	12543	4579	6076			281,779	480,614	(370,705)	379,810	851,319	
2040						211,384	410,219	12039	4390	5660			233,474	432,309	(391,549)	301,645	823,857	
2041						148,456	347,291	11535	4201	5244			169,437	368,272	(428,124)	1,023,679	796,395	
2042						85,528	284,363	11031	4012	4828			105,400	304,235	(464,699)	967,976	768,933	
2043						22,600	221,435	10528	3823	4412			41,363	240,198	(501,274)	(28,143)	741,472	
2044						(18,335)	180,500	10024	3634	3996			(681)	198,154	(515,856)	459,427	714,010	
2045						(18,335)	180,500	9520	3445	3580			(1,790)	197,045	(489,503)	(615,658)	686,548	
2046						(18,335)	180,500	9016	3256	3164			(2,899)	195,936	(463,150)	(603,741)	659,086	
2047						(18,335)	180,500	8512	3067	2748			(4,008)	194,827	(436,797)	(305,855)	631,624	
2048						(18,335)	180,500	8008	2878	2332			(5,117)	193,718	(410,444)	(585,000)	604,162	
2049						(18,335)	180,500	7504	2689	1916			(6,226)	192,609	(384,091)	(298,584)	576,700	
2050						(18,335)	180,500	7000	2500	1500			(7,335)	191,500	(357,738)	(646,654)	549,238	

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North-of-the Delta Offstream Storage Project Alternative C
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Historical Period (Estimated from best available data)

	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Power Resources (GWh)														
SWP Hydro	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742
Hypothetical Hydro Projection (based on historic)														
SWP Renewables	416	450	362	326	307	168	201	167	153	138	224	235	193	249
New Renewables														
Reid Gardner Unit 4	799	1,004	1,632	1,687	1,447	1,324	1,069	1,198	1,206	387	632	808	1,382	1,596
Lodi Energy Center														
Other														
Purchases and Exchanges	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Purchases and Exchangeswith NODOS Alternative C	4,709	4,673	4,391	4,934	6,208	4,339	4,780	4,875	4,588	5,572	6,084	6,536	6,527	6,341
Hypothetical Purchases and Exchanges														
ALT- MRTU PURCHASES	(514)	471	856	1,715	2,717	1,017	903	(1,029)	984	(2,271)	(997)	(137)	(3,530)	(829)
Total Resources	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Total Resources with BDCP	**10,420**	**9,052**	**9,587**	**10,796**	**11,880**	**7,950**	**8,150**	**10,473**	**8,968**	**11,574**	**12,389**	**12,342**	**13,503**	**12,928**
Emissions (mtCO$_2$e)														
Large Hydro (0 mtCO$_2$e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 mtCO$_2$e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 mtCO$_2$e/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 mtCO$_2$e/GWh)	891,684	1,120,464	1,821,312	1,882,692	1,615,031	1,477,171	1,193,037	1,337,370	1,346,264	431,345	705,825	901,895	1,542,357	1,780,799
Lodi Energy Center (361 mtCO$_2$e)	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Other (varies see back-up)														
Purchases and Exchanges	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Purchases and Exchanges with NODOS Alternative C	2,616,075	2,596,075	2,439,411	2,741,073	3,251,138	2,254,336	2,466,371	3,043,053	2,887,887	3,280,278	2,870,633	3,579,377	4,029,143	3,406,451
Total Emissions	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
Total Emissions with NODOS Alternative C	**3,507,759**	**3,716,539**	**4,260,723**	**4,623,765**	**4,866,168**	**3,731,507**	**3,659,408**	**4,380,423**	**4,234,151**	**3,711,623**	**3,576,458**	**4,481,272**	**5,571,500**	**5,187,250**
ALT-MRTU	891,684	1,382,127	2,296,861	2,835,457	3,037,914	2,005,774	1,659,218	1,337,370	1,965,892	431,345	705,825	901,895	1,542,357	1,780,799
Hypothetical Hydro														
Portfolio Emissions Rate	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Portfolio Emissions Rate with NODOS Alternative C	**337**	**411**	**444**	**428**	**410**	**469**	**449**	**418**	**472**	**321**	**289**	**363**	**413**	**401**
Load (GWH)														
Sales and Exchanges	5,223	4,202	3,535	3,219	3,491	3,322	3,877	5,904	3,604	7,843	7,081	6,673	10,057	7,170
Net SWP Load	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Net SWP Load with NODOS Alternative C	**5,197**	**4,850**	**6,052**	**7,577**	**8,389**	**4,628**	**4,273**	**4,569**	**5,365**	**3,732**	**5,308**	**5,670**	**3,445**	**5,758**
Total DWR Emissions	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Total DWR Emissions with NODOS Alternative C	**1,749,503**	**1,991,296**	**2,689,673**	**3,245,116**	**3,436,218**	**2,172,342**	**1,918,826**	**1,911,030**	**2,532,737**	**1,196,658**	**1,532,355**	**2,058,493**	**1,421,625**	**2,310,173**
Average Year-on-year emissions reduction														
Reid Gardner Reduction														
New Renewables (annual-year on year change)														
New Renewables (cumulative)														
Lodi														
Total Calculated Emissions Reductions														
Total Projected Emissions Reductions														
Difference														

ARB Supplied Data-Unspecified Imports

mtCO$_2$e/GWh	555.5	555.5	555.5	555.5	523.7	519.5	516.0	624.2	629.4	588.7	471.8	547.7	617.3	537.2

North-of-the Delta Offstream Storage Project Alternative C
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Historical Period (Estimated from best available data)							Current Period (Calculated)					Future Period (Projected)					
	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
Power Resources (GWh)																		
SWP Hydro	5,536	3,310	4,196	4,780	5,307	4,500	6,526	*2059*	*2785*	3,008	4,133	3,990	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)													4,496	2,925	3,202	3849	3,917	2,119
SWP Renewables	349	279	359	321	392	352	329	*3176*	*406*	394			219	219	219	219	219	219
New Renewables											-	-	36	72	108	144	180	216
Reid Gardner Unit 4	1,789	1,639	1,620	1,603	1,605	1,578	1,537	*1327*	*1127*	1,170	901	1,131	900	900	450	-	-	
Lodi Energy Center														304	500	500	500	500
Other								*279*	*161*	107		-						
Purchases and Exchanges	10,830	12,137	7,900	6,930	5,990	4,311	4,694	*4707*	*3556*	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Purchases and Exchangeswith NODOS Alternative C	10,830	12,137	7,900	6,930	5,990	4,311	4,694	*4707*	*3556*	2,850	2,158		1,795	1,455	1,673	2,087	2,051	2,015
Hypothetical Purchases and Exchanges													1,372	2,603	2,544	2,311	2,207	3,969
ALT- MRTU PURCHASES	1,516	1,426	2,220	2,471	2,565	1,878	767	2,728	1,410	1,481	2,158							
Total Resources	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**18,505**	**17,365**	**14,074**	**13,634**	**13,293**	**10,740**	**13,086**	**11,549**	**8,035**	**7,529**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-		-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	1,996,764	1,829,253	1,807,881	1,789,445	1,791,216	1,760,942	1,714,866	1,481,486	1,257,408	1,306,156	1,005,516		1,004,400	1,004,400	502,200	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	-	-	-	-	-	-	-	-	-	-	-		-	109,744	180,500	180,500	180,500	180,500
Other (varies see back-up)								80,073	46,324	30,593								
Purchases and Exchanges	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046		784,272	635,692	730,958	911,876	896,144	880,412
Purchases and Exchanges with NODOS Alternative C	4,725,350	8,131,028	3,911,767	4,248,843	3,485,475	2,379,088	2,505,979	2,434,178	2,064,237	1,245,563	943,046	-	784,272	635,692	730,958	911,876	896,144	880,412
Total Emissions	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**		**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total Emissions with NODOS Alternative C	**6,722,114**	**9,960,282**	**5,719,648**	**6,038,288**	**5,276,691**	**4,140,030**	**4,220,845**	**3,995,737**	**3,367,969**	**2,582,312**	**1,948,562**	**-**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
ALT-MRTU	2,658,101	2,784,901	2,906,905	3,304,548	3,283,511	2,797,704	2,124,363	2,892,243	2,076,036	1,953,290	1,948,562							
Hypothetical Hydro											1,948,562		1,603,964	2,251,655	1,794,428	1,190,407	1,144,815	1,915,154
Portfolio Emissions Rate	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**		**255**	**249**	**201**	**156**	**153**	**151**
Portfolio Emissions Rate with NODOS Alternative C	**363**	**574**	**406**	**443**	**397**	**385**	**323**	**346**	**419**	**343**	**271**	**0**	**255**	**249**	**201**	**156**	**153**	**151**
Load (GWH)																		
Sales and Exchanges	9,315	10,711	5,680	4,458	3,425	2,432	3,927	2,258	2,307	1,476	-							
Net SWP Load	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative C	**9,190**	**6,655**	**8,394**	**9,175**	**9,868**	**8,308**	**9,158**	**9,291**	**5,728**	**6,053**	**7,192**	**8,576**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total DWR Emissions	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	**2,410,018**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Total DWR Emissions with NODOS Alternative C	**3,338,492**	**3,816,900**	**3,411,156**	**4,063,664**	**3,916,983**	**3,202,498**	**2,954,078**	**3,214,498**	**2,400,921**	**2,076,089**	**1,948,562**	**-**	**1,788,672**	**1,749,836**	**1,413,658**	**1,092,376**	**1,076,644**	**1,060,912**
Average Year-on-year emissions reduction													(621,346)	(38,836)	(336,178)	(321,282)	(15,732)	(15,732)
Reid Gardner Reduction															(297,266)	(305,550)	-	
New Renewables (annual-year on year change)													(15,732)	(15,732)	(15,732)	(15,732)	(15,732)	(15,732)
New Renewables (cumulative)													(15,732)	(31,464)	(47,196)	(62,928)	(78,660)	(94,392)
Lodi														(23,104)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions													(15,732)	(54,568)	(367,642)	(688,924)	(407,390)	(423,122)
Total Projected Emissions Reductions													(621,346)	(660,182)	(996,360)	(1,317,642)	(1,333,374)	(1,349,106)
Difference													605,614	605,614	628,718	628,718	925,984	925,984

ARB Supplied Data-Unspecified Imports

	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	Current	2011	2012	2013	2014	2015	2016
$mtCO_2e$/GWh	436.3	669.9	495.2	613.2	581.9	551.9	533.8	517.1	580.5	437.0	437.0		437.0	437.0	437.0	437.0	437.0	437.0

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North-of-the Delta Offstream Storage Project Alternative C
Detailed Operations' Emissions - Historical and Projected, 1990-2050

Future Period (Projected)

	2017	2018	2019	2020	2021	2022	2023	2024	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Power Resources (GWh)																		
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536	3,310	4,196	4,780	5,307	4,500	6,526	*2059*	*2785*	3,008
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	252	288	324	360	432	504	576	648	720	792	864	936	1,008	1,080	1,188	1,296	1,404	1,512
Reid Gardner Unit 4																		
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																		
Purchases and Exchanges	1,979	1,943	1,907	1,871	1,799	1,727	1,655	1,583	1,511	1,439	1,367	1,295	1,223	1,151	1,043	935	827	719
Purchases and Exchangeswith NODOS Alternative C	1,979	1,943	1,907	1,871	1,799	2,182	2,110	2,038	1,966	1,894	1,822	1,750	1,678	1,606	1,498	1,390	1,282	1,174
Hypothetical Purchases and Exchanges	3,953	1,784	2,960	466	424	1,036	328	914	48	2,202	1,244	588	(11)	724	(1,410)	2,949	2,115	1,784
ALT- MRTU PURCHASES																		
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**
Emissions ($mtCO_2e$)																		
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																		
Purchases and Exchanges	864,680	848,948	833,216	817,484	786,020	754,556	723,092	691,628	660,164	628,700	597,236	565,772	534,308	502,844	455,648	408,452	361,256	314,060
Purchases and Exchanges with NODOS Alternative C	864,680	848,948	833,216	817,484	786,020	953,391	921,927	890,463	858,999	827,535	796,071	764,607	733,143	701,679	654,483	607,287	560,091	512,895
Total Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**	**541,756**	**494,560**
Total Emissions with NODOS Alternative C	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,133,891**	**1,102,427**	**1,070,963**	**1,039,499**	**1,008,035**	**976,571**	**945,107**	**913,643**	**882,179**	**834,983**	**787,787**	**740,591**	**693,395**
ALT-MRTU																		
Hypothetical Hydro	1,907,756	959,942	1,473,823	384,116	365,678	633,208	323,709	579,770	201,344	1,142,635	724,249	437,379	175,892	497,087	(435,659)	1,469,074	1,104,711	960,095
Portfolio Emissions Rate	**149**	**147**	**144**	**142**	**138**	**133**	**129**	**124**	**120**	**115**	**111**	**106**	**102**	**97**	**91**	**84**	**77**	**70**
Portfolio Emissions Rate with NODOS Alternative C	**149**	**147**	**144**	**142**	**138**	**152**	**147**	**143**	**139**	**135**	**131**	**126**	**122**	**118**	**112**	**105**	**99**	**93**
Load (GWH)																		
Sales and Exchanges																		
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative C	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**
Total DWR Emissions	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**935,056**	**903,592**	**872,128**	**840,664**	**809,200**	**777,736**	**746,272**	**714,808**	**683,344**	**636,148**	**588,952**	**541,756**	**494,560**
Total DWR Emissions with NODOS Alternative C	**1,045,180**	**1,029,448**	**1,013,716**	**997,984**	**966,520**	**1,133,891**	**1,102,427**	**1,070,963**	**1,039,499**	**1,008,035**	**976,571**	**945,107**	**913,643**	**882,179**	**834,983**	**787,787**	**740,591**	**693,395**
Average Year-on-year emissions reduction	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)	(47,196)	(47,196)
Reid Gardner Reduction																		
New Renewables (annual-year on year change)	(15,732)	(15,732)	(15,732)	(15,732)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(31,464)	(47,196)	(47,196)	(47,196)	(47,196)
New Renewables (cumulative)	(110,124)	(125,856)	(141,588)	(157,320)	(188,784)	(220,248)	(251,712)	(283,176)	(314,640)	(346,104)	(377,568)	(409,032)	(440,496)	(471,960)	(519,156)	(566,352)	(613,548)	(660,744)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(438,854)	(454,586)	(470,318)	(486,050)	(517,514)	(548,978)	(580,442)	(611,906)	(643,370)	(674,834)	(706,298)	(737,762)	(769,226)	(800,690)	(847,886)	(895,082)	(942,278)	(989,474)
Total Projected Emissions Reductions	(1,364,838)	(1,380,570)	(1,396,302)	(1,412,034)	(1,443,498)	(1,474,962)	(1,506,426)	(1,537,890)	(1,569,354)	(1,600,818)	(1,632,282)	(1,663,746)	(1,695,210)	(1,726,674)	(1,773,870)	(1,821,066)	(1,868,262)	(1,915,458)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984

ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.

North-of-the Delta Offstream Storage Project Alternative C
Detailed Operations' Emissions - Historical and Projected, 1990-2050

	Future Period (Projected)															
	2035	2036	2037	2038	2039	2040	2041	2042	2043	2044	2045	2046	2047	2048	2049	2050
Power Resources (GWh)																
SWP Hydro	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073	4,073
Hypothetical Hydro Projection (based on historic)	4,133	4,496	2,925	3,202	3849	3,917	2,119	2,099	4,232	3,020	5,478	5,448	4,764	5,400	4,742	5,536
SWP Renewables	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219	219
New Renewables	1,620	1,728	1,836	1,944	2,052	2,160	2,304	2,448	2,592	2,686	2,686	2,686	2,686	2,686	2,686	2,686
Reid Gardner Unit 4																
Lodi Energy Center	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500	500
Other																
Purchases and Exchanges	611	503	395	287	179	71	(73)	(217)	(361)	(455)	(455)	(455)	(455)	(455)	(455)	(455)
Purchases and Exchangeswith NODOS Alternative C	1,066	958	850	742	634	526	382	238	94	-	-	-	-	-	-	-
Hypothetical Purchases and Exchanges	551	80	1,543	1,158	403	227	1,881	1,757	(520)	598	(1,860)	(1,830)	(1,146)	(1,782)	(1,124)	(1,918)
ALT- MRTU PURCHASES																
Total Resources	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Total Resources with BDCP	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**
Emissions ($mtCO_2e$)																
Large Hydro (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
SWP Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
New Renewables (0 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Reid Gardner Unit 4 (1116 $mtCO_2e$/GWh)	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Lodi Energy Center (361 $mtCO_2e$)	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500	180,500
Other (varies see back-up)																
Purchases and Exchanges	266,864	219,668	172,472	125,276	78,080	30,884	(32,044)	(94,972)	(157,900)	(198,835)	(198,835)	(198,835)	(198,835)	(198,835)	(198,835)	(198,835)
Purchases and Exchanges with NODOS Alternative C	465,699	418,503	371,307	324,111	276,915	229,719	166,791	103,863	40,935	-	-	-	-	-	-	-
Total Emissions	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**
Total Emissions with NODOS Alternative C	**646,199**	**599,003**	**551,807**	**504,611**	**457,415**	**410,219**	**347,291**	**284,363**	**221,435**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
ALT-MRTU																
Hypothetical Hydro	421,287	215,460	854,791	686,546	356,611	279,555	1,002,698	948,104	(46,906)	441,773	(632,203)	(619,177)	(320,182)	(598,218)	(310,693)	(657,654)
Portfolio Emissions Rate	**64**	**57**	**50**	**44**	**37**	**30**	**21**	**12**	**3**	**-3**	**-3**	**-3**	**-3**	**-3**	**-3**	**-3**
Portfolio Emissions Rate with NODOS Alternative C	**86**	**80**	**74**	**67**	**61**	**55**	**46**	**38**	**30**	**24**	**24**	**24**	**24**	**24**	**24**	**24**
Load (GWH)																
Sales and Exchanges																
Net SWP Load	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**	**7,023**
Net SWP Load with NODOS Alternative C	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**	**7,478**
Total DWR Emissions	**447,364**	**400,168**	**352,972**	**305,776**	**258,580**	**211,384**	**148,456**	**85,528**	**22,600**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**	**(18,335)**
Total DWR Emissions with NODOS Alternative C	**646,199**	**599,003**	**551,807**	**504,611**	**457,415**	**410,219**	**347,291**	**284,363**	**221,435**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**	**180,500**
Average Year-on-year emissions reduction	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(40,935)	-	-	-	-	-	-
Reid Gardner Reduction																
New Renewables (annual-year on year change)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(47,196)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)	(62,928)
New Renewables (cumulative)	(707,940)	(755,136)	(802,332)	(849,528)	(896,724)	(943,920)	(1,006,848)	(1,069,776)	(1,132,704)	(1,195,632)	(1,258,560)	(1,321,488)	(1,384,416)	(1,447,344)	(1,510,272)	(1,573,200)
Lodi	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)	(23,180)
Total Calculated Emissions Reductions	(1,036,670)	(1,083,866)	(1,131,062)	(1,178,258)	(1,225,454)	(1,272,650)	(1,335,578)	(1,398,506)	(1,461,434)	(1,524,362)	(1,587,290)	(1,650,218)	(1,713,146)	(1,776,074)	(1,839,002)	(1,901,930)
Total Projected Emissions Reductions	(1,962,654)	(2,009,850)	(2,057,046)	(2,104,242)	(2,151,438)	(2,198,634)	(2,261,562)	(2,324,490)	(2,387,418)	(2,428,353)	(2,428,353)	(2,428,353)	(2,428,353)	(2,428,353)	(2,428,353)	(2,428,353)
Difference	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	925,984	903,991	841,063	778,135	715,207	652,279	589,351	526,423

ARB Supplied Data-Unspecified Imports

$mtCO_2e$/GWh	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0	437.0

Appendix 25B
Climate Change and Sea Level Rise Sensitivity Analysis

Appendix 25B Climate Change and Sea Level Rise Sensitivity Analysis

25B.1 Introduction

This appendix presents a sensitivity analysis performed to assess how uncertainty in future climate conditions might affect performance of the North-of-the-Delta Offstream Storage (NODOS) Project.

Modeling was prepared for the NODOS Administrative Draft Environmental Impact Report/ Environmental Impact Statement (EIR/EIS) and the Administrative Draft Feasibility Report (FR). Modeling was prepared, assuming current climate and sea level conditions, for detailed evaluation of the impacts and benefits of the No Project/No Action Alternative and NODOS action Alternatives A, B, and C. This modeling is summarized in Chapter 5 Guide to the Resource Analyses and Appendix 6B of the EIR/EIS. This appendix is part of the EIR/EIS. Throughout this document, unless otherwise noted, all references to other chapters and appendixes of the EIR/EIS are implied.

A sensitivity analysis was prepared to assess the impacts of climate change and sea level rise on the modeling prepared for the NODOS EIR/EIS. The sensitivity analysis included simulation of the alternatives under a range of climate and sea level scenarios and the comparison of results of these scenarios with the “without climate change “modeling used for the detailed evaluation in the NODOS FR and EIR/EIS.

25B.1.1 Background

It has been assumed that the detailed evaluation of the NODOS EIR/EIS, using modeling that assumed current climate and sea level conditions, is sufficient to identify the potential impacts of the NODOS Project. This was based on the expectation that the Project would generally have the greatest adverse impact under current climate conditions than under future climate conditions that are likely to be warmer and have significantly altered snowpack and runoff conditions and higher sea levels than current conditions. The incremental changes in the flow and storage operations (and, therefore, other resources) for the NODOS with-Project conditions, when compared to the No Project/No Action Alternative under projected climate and sea level conditions, was expected to trend similar to those simulated under the current climate scenario.

Similarly, it has been assumed that the feasibility analysis of the NODOS FR, using modeling that assumed current climate and sea level conditions, is a more conservative estimate of economic and noneconomic benefits of the Project, assuming the continuation of current trends in the socioeconomic conditions. This was based on the expectation that the Project would have the least beneficial impact under current climate conditions, than under future climate conditions that are likely to have poorer habitat conditions for anadromous and Sacramento-San Joaquin River Delta (Delta) fisheries, lower water supply reliability, and higher potential flow requirements for maintaining Delta water quality conditions than current conditions assuming that current Delta regulations are unchanged.

25B.1.2 Sensitivity Analysis Objective

The NODOS Project climate change and sea level rise sensitivity analysis has been prepared as a tool for planners, resources specialists, stakeholders, and the public to consider the influence of climate change and sea level rise on the NODOS Project and verify that the EIR/EIS and FR findings are adequate and meet these expectations. The results of the NODOS Project climate change and sea level rise sensitivity analysis, generally confirm these expectations, and therefore, support the findings of the EIR/EIS and FR.

The analysis also provides a context for consideration of uncertainty and anticipated trends due to climate change throughout the planning horizon for the Project, and the potential role of the NODOS Project in adaptation of the California water resources system to the impacts of climate change and sea level rise. A comparison of the No Project/No Action Alternative, with and without climate change and sea level rise, will help the reader to understand the potential range of effects upon California's major water systems from climate change and sea level rise. In addition, the sensitivity analysis will help the reader to understand how the range of potential climate change and sea level rise effects will impact the performance of the NODOS Project alternatives more specifically.

This appendix documents the approach and assumptions used for the sensitivity analysis and the results and findings of the analysis. The results of the sensitivity analysis are presented in figures and tables. The results of the sensitivity analysis are not intended to be used for detailed evaluation of alternatives; they are subject to some limitations. Limitations of the approach are also discussed in this appendix.

25B.2 Approach and Assumptions

25B.2.1 NODOS Sites Reservoir Scenarios

In the detailed evaluation of NODOS Project alternatives in the EIR/EIS and FR, the State Water Project (SWP) and Central Valley Project (CVP) operations model (CALSIM II) was used to simulate the following scenarios assuming current climate and sea level condition:

- Existing Conditions
- No Project/No Action Alternative
- Alternative A: includes a 1.27-MAF Sites Reservoir with conveyance to and from the reservoir provided by the existing Tehama-Colusa (T-C) and Glenn-Colusa Irrigation District (GCID) canals and a new Delevan Pipeline (2,000-cubic feet per second (cfs) diversion/1,500-cfs release)
- Alternative B: includes a 1.81-MAF Sites Reservoir with conveyance to and from the reservoir provided by the existing T-C and GCID canals, and a new release-only Delevan Pipeline (1,500-cfs release)
- Alternative C: includes a 1.81-MAF Sites Reservoir with conveyance to and from the reservoir provided by the existing T-C and GCID canals and a new Delevan Pipeline (2,000-cfs diversion/1,500-cfs release)

The detailed evaluation of NODOS Project alternatives also included the application of a larger suite of hydrologic, operations, water quality, fisheries, riverine geomorphic and sediment, power, and economics models to the alternatives. The detailed evaluation involved the simulation and analysis of over 100 parameters describing water flow, storage, diversion, temperature, salinity, fish population and mortality, power generation and use, and various revenues and costs throughout the water system included in the three study areas. A fuller description of the suite of models applied can be found in Appendix 6B.

For the climate change and sea level rise sensitivity analysis, the No Project/No Action Alternative and Alternatives A, B, and C were simulated for four climate and sea level scenarios in addition to the current climate conditions simulated for the detailed evaluation in the EIR/EIS. The modeling for the sensitivity analysis included only the CALSIM II model. CALSIM II is used to describe the storage, flow, and operations of the California water resources system. The model simulates the water resources system of the Central Valley, including existing and proposed facilities, flow and water quality related regulatory and operational agreements, demands and contracts for water diversions, and hydrology. The model includes the major components of the SWP, CVP, and selected water districts, and the proposed NODOS Project features, which include additional storage, intake, and conveyance facilities. A description of the modeling of NODOS Project features and each of the alternatives and the CALSIM II model can be found in Appendix 6A and Appendix 6B.

25B.2.2 Climate and Sea Level Scenarios

The climate and sea level scenarios used in this sensitivity analysis were previously developed for the Bay Delta Conservation Plan (BDCP) Effects Analysis and Administrative Draft EIR/EIS and documented in the BDCP Effects Analysis Appendix 5.A.2 (DWR, 2013a) and the BDCP Administrative Draft EIR/EIS Appendix 5A (DWR, 2013b). The California Department of Water Resources (DWR) modeling team had developed climate and sea level scenarios for evaluation of the BDCP alternatives. The lead and co-lead agencies for the BDCP collaborated on the methodology and approved the selection and use of scenarios for the BDCP Effects Analysis and Administrative Draft EIR/EIS. The required inputs and modifications for the CALSIM II model for various climate and sea level scenarios were developed. The BDCP appendix describes the methodology and selection of the climate and sea level scenarios and the development of the inputs and modifications for the CALSIM II model.

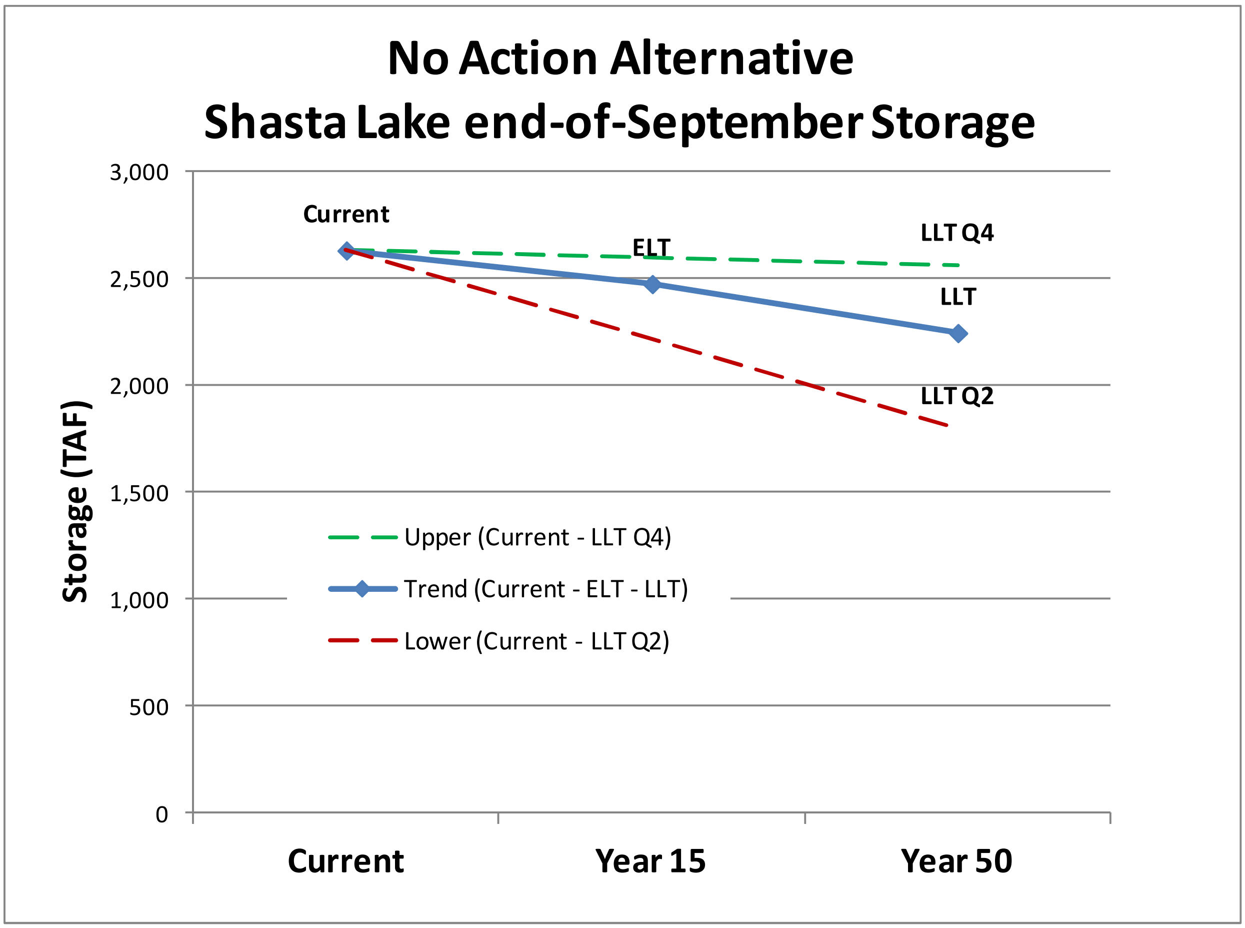
For the NODOS Project sensitivity analysis, four climate and sea level scenarios, in addition to the current climate and sea level scenario (Current), were selected for sensitivity analyses:

- The Early Long-Term (**ELT Q5**) scenario represents the median conditions (Q5) and includes an ensemble of global climate models (GCM) projections at a point in time 15 years into the future (~2025) and a sea level rise of 15 centimeters (cm) (6 inches)
- The Late Long-Term (**LLT Q5**) scenario represents the median conditions (Q5) and includes an ensemble of GCM projections at a point in time 50 years into the future (~2060) and a sea level rise of 45 cm (18 inches)
- The Late Long-Term (**LLT Q2**) scenario represents the “drier, more warming” or the lower bound (Q2) and includes an ensemble of GCM projections at a point in time 50 years into the future (~2060) and a sea level rise of 45 cm (18 inches)
- The Late Long-Term (**LLT Q4**) scenario represents the “wetter, less warming” or the upper bound (Q4) and includes an ensemble of GCM projections at a point in time 50 years into the future (~2060) and a sea level rise of 45 cm (18 inches)

Using these climate and sea level scenarios, the No Project/No Action Alternative and Alternatives A, B, and C were re-simulated for the range of ELT and LLT conditions. Section 25B.3 describes the climate and sea level scenarios in more detail.

An example parameter is used to demonstrate the relationship between the Current, ELT (Q5), LLT (Q5), and LLT Q2 and LLT Q4 scenarios in Figure 25B-1. Figure 25B-1 shows the CALSIM II model results for the No Project/No Action Alternative for Shasta Lake end-of-September Storage conditions, and how these conditions are impacted by climate change. This graphic indicates, in part, an anticipated trend of climate change effect for one parameter: Shasta Lake end-of-September storage. It is expected that CALSIM II model results for a NODOS Project alternative for Shasta Lake end-of-September storage conditions would be impacted in a similar way. That analysis was also completed and is shown later. A wide range of results has been compiled to support discussion and evaluation of these types of questions.

Figure 25B-1
Example CALSIM II Model Results for the No Project/No Action Alternative Showing the Trend and Range of Impact of ELT (Q5), LLT (Q5), and LLT Q2 and LLT Q4 Climate Change and Sea Level Rise Scenarios on Shasta Lake End-of-September Storage Conditions



25B.2.3 Current, ELT (Q5), and LLT (Q5) Trend

The expected trend in climate and sea level conditions over the next fifty (50) years is shown by the relative changes in results at Current, ELT (Q5), and LLT (Q5) climate and sea level conditions. For example, the expected trend in climate and sea level conditions, and the expected trend (median, 50 percent probability) in the impacts of the NODOS Project, throughout this trend, for each NODOS Project alternative, are determined by the differences in results and the incremental changes in differences across these three comparisons:

- NODOS Project alternative minus the No Project/No Action Alternative
- NODOS Project alternative at ELT (Q5) minus the No Project/No Action Alternative at ELT (Q5)
- NODOS Project alternative at LLT (Q5) minus the No Project/No Action Alternative at LLT (Q5)

Based on the methodology for selection of climate and sea level scenarios described in Section 25B.3, the relative differences indicating the trend across Current, ELT (Q5), and LLT (Q5) scenarios are primarily the result of increases in temperature in the inner quartiles (25th to 75th percentile) of the ensemble of climate projections used and the sea levels selected.

25B.2.4 LLT Uncertainty Range

The range of uncertainty in the climate change projections at fifty (50) years, near the mid-point of the NODOS Project planning period, are captured by LLT Q2 (more warming -drier), and LLT Q4 (less warming-wetter). The range of effects on the NODOS Project alternatives due to uncertainty in the climate change projections, at fifty (50) years, are demonstrated by the differences in results and the incremental changes in differences across these three comparisons:

- NODOS Project alternative minus the No Project/No Action Alternative
- NODOS Project alternative at LLT Q2 minus the No Project/No Action Alternative at LLT Q2 (lower, 10 percent joint temperature-precipitation probability)
- NODOS Project alternative at LLT Q4 minus the No Project/No Action Alternative at LLT Q4 (higher, 90 percent joint temperature-precipitation probability)

Based on the methodology described in Section 25B.3, for selection of climate and sea level scenarios, the potential range of differences in LLT Q2 and Q4 scenarios are primarily the result of uncertainty in total precipitation and expected warming in the ensemble of climate projections used. As indicated previously, LLT Q2 reflects a drier climate changed future and LLT Q4 reflects wetter conditions. In addition, LLT Q2 is relatively warmer than LLT Q4. The LLT (Q5), LLT Q2, and LLT Q4 scenarios included same sea level rise projections at fifty (50) years as described in Section 25B.3.2.

Selected model inputs and results for the No Project/No Action Alternative are compiled in Section 25B.7. This compilation is helpful to understand the magnitude of potential changes associated exclusively with climate change and sea level rise.

Selected model results for all alternatives are compiled in Section 25B.8. This compilation is helpful to understand the magnitude of potential changes in the NODOS Project alternatives due to climate change and sea level rise.

The format of figures and tables, and guidance for interpretation of results is discussed in Section 25B.5. Selected results and findings are highlighted and presented in Section 25B.5.

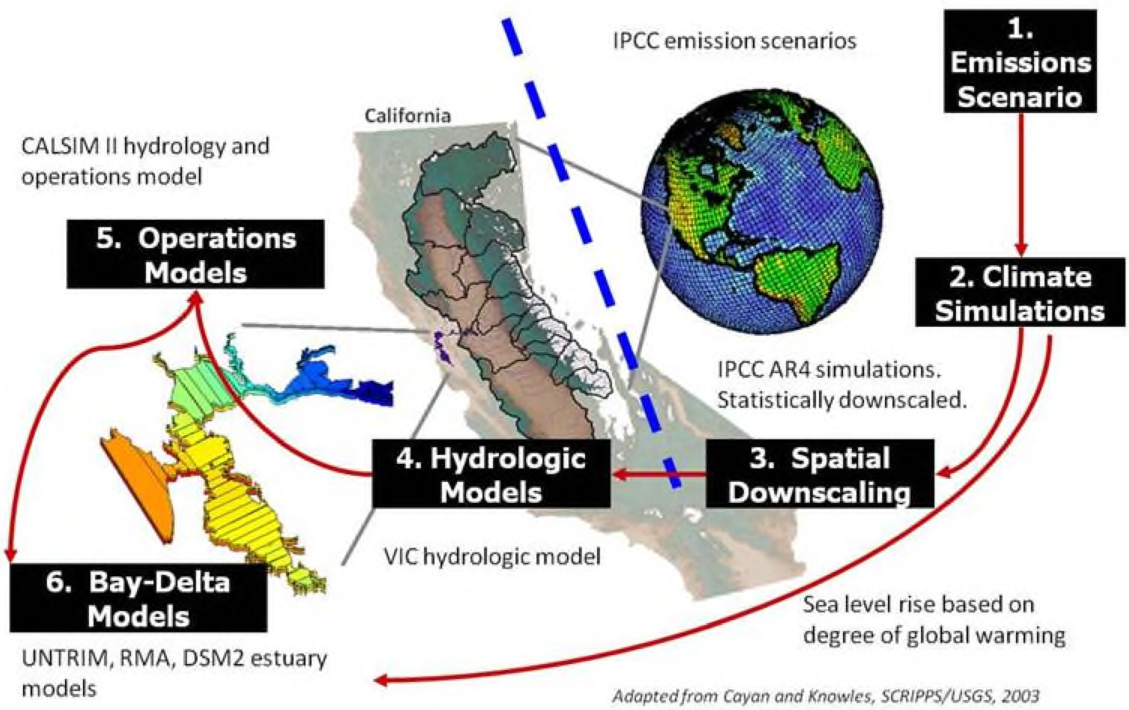
The results of the sensitivity analysis are not intended to be used for detailed evaluation of alternatives, and are subject to some limitations. The format of figures and tables included in Sections 25B.7 and 25B.8 have been selected to support full use of the sensitivity analysis, but consistent with the limitations of the analysis. Limitations of the approach are also addressed in Section 25B.4.

25B.3 Climate and Sea Level Scenarios

The climate and sea level scenarios used for this sensitivity analysis were selected from scenarios developed for the BDCP Effects Analysis (DWR, 2013a) and BDCP Administrative Draft EIR/EIS (DWR, 2013b). The following discussion is a summary of this methodology as it pertains to the sensitivity analysis developed for the NODOS Project EIR/EIS and FR. The reader is referred to the BDCP documents for more detailed information related to the scenarios.

The analytical process for incorporating climate and sea level scenario into the CALSIM II simulation model includes the use of several sequenced analytical tools. These tools and the analytical process are shown conceptually in Figure 25B-2. This process includes modified hydrologic inputs (inflow time-series) and modified flow-salinity relationships for Sacramento-San Joaquin River Delta salinity compliance modeling (revised Artificial Neural Networks [ANNs]).

Figure 25B-2
Graphical Depiction of the Analytical Process for Incorporating Climate Change into the CALSIM II Model for Water Resources Planning Purposes



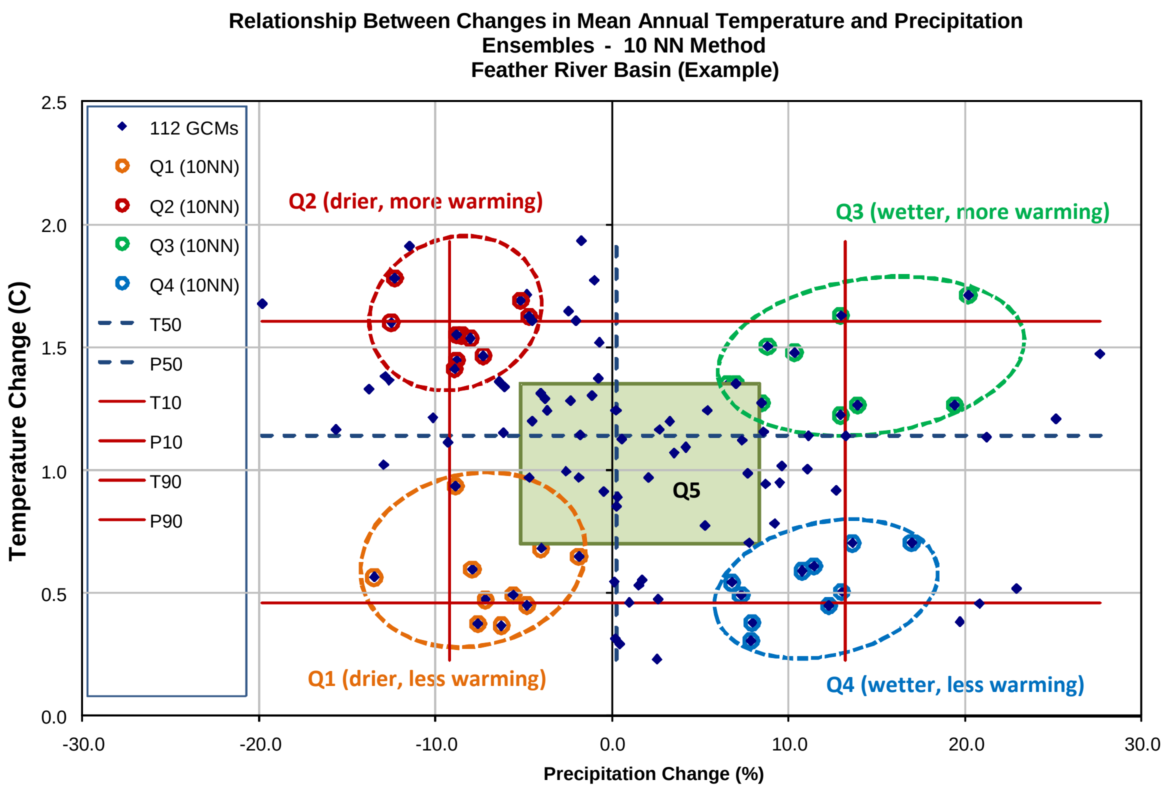
25B.3.1 Climate Scenarios

For the NODOS Project sensitivity analysis, ELT and LLT scenarios were selected based on ensembles of climate projections. The ELT scenario considers climate conditions (temperature and precipitation) for a period of thirty (30) years centered on analysis year 2025 (years 2011 to 2040) and projected sea level conditions at year 2025. The LLT scenario, likewise, considers climate conditions for a period of thirty (30) years centered on analysis year 2060 (years 2046 to 2075) and projected sea level conditions at year 2060.

A collection of 112 future climate projections, based on multiple GCMs and multiple emission scenarios, were grouped into five ensembles (Q1 to Q5) and used in the development of the ELT and LLT scenarios.

These projections were used in the Intergovernmental Panel on Climate Change (IPCC) Fourth Assessment Report (IPCC, 2007) and generated from 16 different GCMs developed by national climate centers and potential emission scenarios A2, A1b, and B1 from IPCC's Special Report on Emission Scenarios (IPCC, 2000). For any given 30-year future climate period, each projection represents one point of change amongst the others. The 112 future climate projections and the resultant five ensembles of the climate projections (Q1 through Q5) are graphically depicted in an example in Figure 25B-3 using downscaled climate projections for a region in the Feather River watershed.

Figure 25B-3
Example Downscaled Climate Projections used for Deriving Climate Ensembles (Q1 to Q5) for the Feather River Basin for the ELT Scenario (Year 2025, Climate Period 2011 to 2040). The Q5 Ensemble is Bounded by the 25th and 75th Percentile Joint Temperature-Precipitation Change. Ensembles Q1 to Q4 are Selected to Reflect the Results of the 10 Projections Nearest Each of 10th and 90th Joint Temperature-Precipitation Change Bounds.



Based on the median (50th percentile) change for a 30-year climatalogical period of both annual temperature and annual precipitation (dashed blue lines in Figure 25B-3), computed by comparing to a historical reference period, the collection of 112 climate projections can be sorted into quadrants representing Q1: drier, less warming; Q2: drier, more warming; Q3: wetter, more warming; and Q4: wetter, less warming than the ensemble median. These quadrants are labeled Q1 to Q4 in Figure 25B-3. In addition, a fifth region (Q5) can be described using the climate projections from inner-quartiles (25th to 75th percentile) of the collection. In each of the five regions, the ensemble of climate change projections, made up of those contained within the region bounds, is identified. The Q5 ensemble is derived from the central tending climate projections, and thus favors the consensus of the collection. The bounding ensembles (Q1 to Q4) are derived using a "nearest neighbor" (k to NN) approach assuming 10 neighboring projections (k = 10). In this approach, a certain joint projection probability is selected based on the annual temperature change-precipitation change (i.e., 90th percentile of temperature and 90th percentile of precipitation change). From this statistical point, the "k" nearest neighbors were selected.

Using these ensembles, one ELT scenario and three LLT scenarios were selected to describe the sensitivity of California's water resources systems in general and the sensitivity of the NODOS Project alternatives specifically. For evaluating the NODOS Project alternatives along the trend in climate and sea level conditions over the next 50 years, the ELT (Q5) and LLT (Q5) scenarios were selected using the respective Q5 ensembles. For evaluating the NODOS Project alternatives throughout the potential range of climate and sea level conditions at 50 years, near the mid-point of the NODOS Project planning period, the LLT Q2 (drier, more warming) and LLT Q4 (wetter, less warming) scenarios were selected using the respective Q2 and Q4 ensembles because these scenarios would likely capture the effect of uncertainty within the range of climate change projections relevant to the NODOS Project alternatives being considered.

For a climate scenario, the statistics of the appropriate ensemble of downscaled climate change projections are used to develop modified hydrology for the 22 tributary watersheds of the Central Valley. The downscaled climate projections are used to create modified temperature and precipitation inputs for the Variable Infiltration Capacity (VIC) hydrology model. The VIC model simulates hydrologic processes on the 1/8th degree scale spatial resolution to produce statistics of watershed runoff. The changes in reservoir inflows and downstream accretions/depletions are translated into modified input time series for the CALSIM II model. The approach used is a technique called "quantile mapping" which maps the statistical properties of climate variables from one data subset with the time series of events from a different subset. The "quantile mapping" was performed on a monthly basis consistent with the inputs of the CALSIM II hydrology. This procedure allowed for the use of a shorter VIC simulation period to define the climate state, yet maintain the variability of the longer historic record required for the hydrology inputs for the CALSIM II 82-year simulation period.

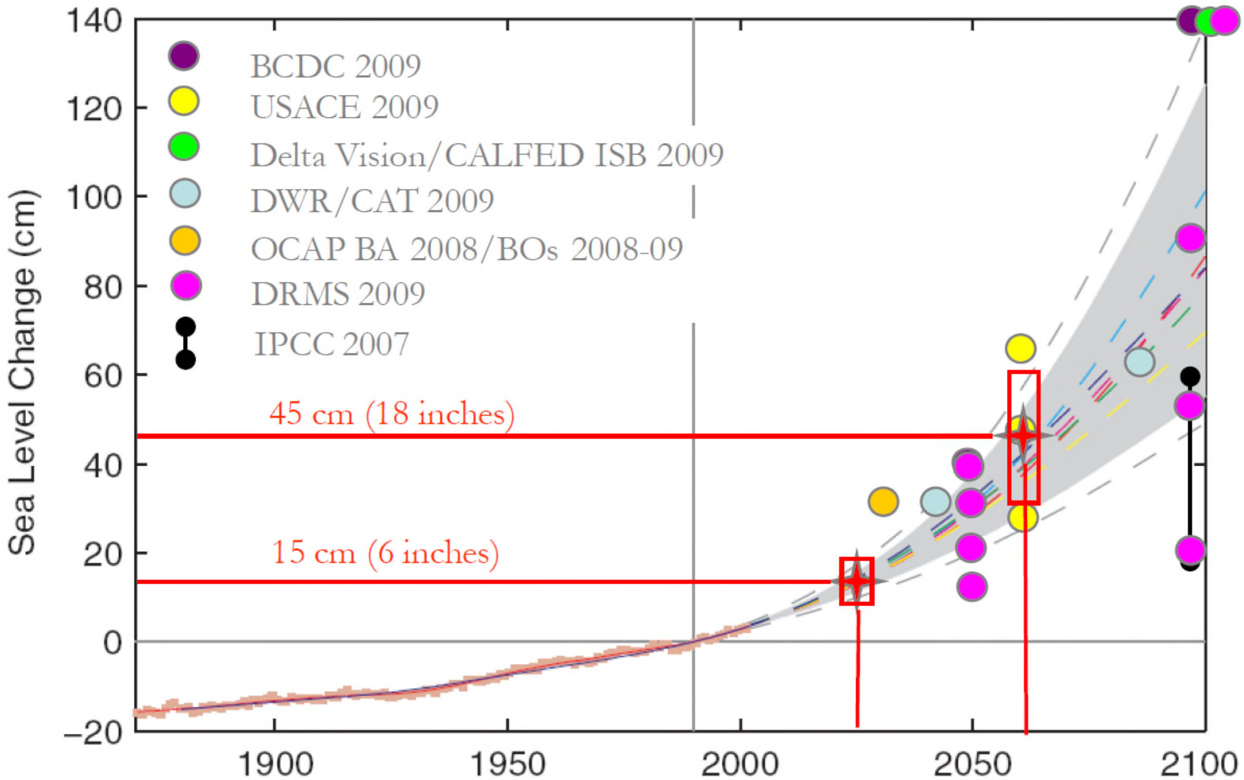
25B.3.2 Sea Level Scenarios

Sea level projections were based on an empirical method developed by Rahmstorf (Rahmstorf, 2007). This method better reproduces historical sea levels and generally produces larger estimates of sea level rise than those indicated by the IPCC (IPCC, 2007). When evaluating all projections of global air temperature, Rahmstorf projects a mid-range sea level rise of 70 to 100 cm (28 to 40 inches) by the end of the century, and when factoring the full range of uncertainty, the projected rise is 50 to 140 cm (20 to 55 inches), as shown in Figure 25B-4. Using the work conducted by Rahmstorf, the projected sea level rise at year 2025 is approximately 12 to 18 cm (5 to 7 inches). The projected sea level rise at year 2060 is approximately 30 to 60 cm (12 to 24 inches). These sea level rise estimates are also consistent with those outlined in the recent U. S. Army Corps of Engineers (USACE) guidance circular for incorporating sea-level changes in civil works programs (USACE, 2009).

For the NODOS Project sensitivity analysis, a sea level rise of 15 cm (6 inches) was assumed for the ELT scenario and a sea level rise of 45 cm (18 inches) was assumed for all LLT scenarios, corresponding to approximately median values within the uncertainty range spanning the range of temperature rise of 1.4 to 5.8 ºC per Rahmstorf, as shown in Figure 25B-4.

Figure 25B-4

Historical and Projected Sea Level Spanning 1990 to 2100 Assuming Global Mean Temperature Rise of 1.4 to 5.8ºC (Rahmstorf, 2007). Various Markers Indicate the Selected Sea Level Rise Assumptions in Recent Bay-Delta Studies (DWR, 2013b). The Red Markers Indicate the Median Sea Level Rise Value of 15 cm (6 inches) Selected for the ELT Scenario at About 2025, and the Median Sea Level Rise Value of 45 cm (18 inches) Selected for all of the LLT Scenarios at About 2060.



CALSIM II uses ANN models to estimate salinity at selected compliance stations in the Sacramento-San Joaquin River Delta estuary. The ANN models are used to describe flow salinity relationships to determine water operations suitable for compliance with Delta salinity standards based on SWRCB D-1641. The ANN models are calibrated based on detailed hydrodynamics and salinity modeling of the Delta using the Delta Simulation Model (DSM2). DSM2 model simulations were developed for each sea level rise scenario, with modified dispersion coefficients to simulate the salinity transport under sea level rise conditions based on the results from the three-dimensional UnTRIM model of the Bay-Delta (DWR, 2013b). For each scenario, new ANNs were developed based on the flow salinity response simulated by the DSM2 model. These sea level rise ANNs were verified and implemented in the CALSIM II models for the ELT (with six inches sea level rise in 2025) and the LLT (with eighteen inches sea level rise in 2060) scenarios.

25B.4 Limitations

The NODOS Project climate change and sea level rise sensitivity analysis has been developed to consider the influence of climate change and sea level rise on the NODOS Project and the detailed analysis used in the EIR/EIS and FR. However, the sensitivity analysis has limitations that need to be considered.

The limitations of the sensitivity analysis are reasonable if the objective of the analysis and use of the results are limited appropriately. The detailed evaluation of NODOS Project alternatives in the EIR/EIS and FR analyses are necessarily quantitative. The detailed evaluation relied on modeling of current climate and sea level conditions. Even though there are quantitative model results (figures and tables of numerical quantities) for the sensitivity analysis, these results should be considered qualitative. Due to the limitations of the modeling used in the sensitivity analysis, the results are not comparable in quality or scope to modeling performed for the detailed evaluation. More specifically, the modeling associated with the detailed evaluation of the EIR/EIS and FR is more finely tuned and more precisely depicts the changes that would occur in the CVP and/or SWP water resources systems in scenarios with and without the NODOS Project-related operations rather than that associated with the climate change sensitivity analyses.

There are several considerations that specifically limit the use of the NODOS Project sensitivity analysis:

- Climate and sea level assumptions and model uncertainty
- No Project/No Action Alternative assumptions and dead pool storage conditions
- NODOS Project alternatives assumptions and operating criteria

25B.4.1 Climate Assumptions and Model Uncertainty

The NODOS Project sensitivity analysis relies on climate and sea level scenarios developed and documented by the BDCP program (DWR, 2013a and DWR, 2013b). The BDCP document identifies several concerns related to these scenarios. Based on this document and consideration of the objective of this analysis, the following limitations regarding the climate and sea level scenario assumptions should be recognized.

The climate scenario assumes selection of temperature and precipitation statistics for an ensemble of climate projections based on multiple GCMs and multiple emission scenarios. The projection of climate (temperature and precipitation statistics) will vary temporally and regionally as a result of the selected ensemble. The range of projections, especially beyond year 2030, is governed primarily by the assumed future global emissions scenarios used to create the climate projections, and the uncertainty inherent in the GCMs used to create the climate projections.

The GCM simulations of historical climate capture the historical range of variability reasonably well (Cayan et al, 2009), but historical trends are not well captured in these models. Precipitation in most of California is dominated by extreme variability, both seasonally, annually, and over decade time scales. The 112 climate projections exhibit more variability in the future precipitation changes than the temperature changes because all the projections show increased temperatures (DWR, 2013a and DWR, 2013b).

The coarse scale of GCMs requires that results must be spatially “downscaled”, or applied to a region or a watershed. Whether through dynamic or statistical methods, downscaling adds another source of uncertainty to the use of projections in hydrologic models. Due to the coarse scale of GCMs and necessary downscaling, projections are not able to capture the full range of local variability of temperature and precipitation statistics. The extent to which local variability is preserved is not known.

Without strongly calibrated and validated models, the “signal” (trend) of change may not be distinguishable from the “noise” (uncertainty) of model error. The ensemble approach is used to give more weight to the “signal” assuming the approach collapses much of the “noise” of the multiple realizations into several representative climate scenarios used for this analysis. The extent to which the variability of the "signal" of one individual climate projection is preserved depends on whether or not the same variability of the "signal" is present amongst the other climate projections used in the ensemble. This implicit differentiation of "noise" from the variability of the "signal" is dominated by the content of the ensemble and not due to a rational recognition of the source of the "noise" and the improvement of the models in projecting the "signal". Each projection is assumed to be of equal likelihood in establishing the consensus that results in the "signal" of the ensemble. The ensemble approach is, therefore, limited in that (1) the selection of climate projections, to be included in an ensemble, is a sub-set of the overall collection of projections available, (2) the weighting of each projection in the ensemble does not consider the "signal" to "noise" strength of each individual projection, and (3) the resulting ensemble does not distinguish variability due to meaningful "signal" and meaningless "noise".

25B.4.2 Sea Level Assumptions and Model Uncertainty

When evaluating all projections of global air temperature, Rahmstorf (Rahmstorf, 2007) projects a mid-range sea level rise of 70 to 100 cm (28 to 40 inches) by the end of the century. When factoring the full range of uncertainty, the projected rise is 50 to 140 cm (20 to 55 inches). The Rahmstorf model was used for the sensitivity analysis. However, only two projections were used: 15 cm for ELT (year 2025) scenario and 45 cm for LLT (year 2060) scenario, corresponding to approximately median values within the uncertainty range spanning the range of temperature rise of 1.4 to 5.8 ºC per Rahmstorf (Rahmstorf, 2007), as shown in Figure 25B-4.

The NODOS Project investigation planning horizon extends to the end of the century. The sensitivity analysis does not include the range of potential sea level rise at the end of the century or the range of uncertainty at each of the ELT and LLT points in time. However, the trend in the incremental changes for the NODOS Project with-Project conditions, when compared to the No Project/No Action Alternative under the projected sea level at the end of the century, is expected to be similar to that presented in this analysis.

In addition, there is considerable uncertainty associated with the tidal amplitude increase and evolving science relating these changes to climate change and mean sea level rise. Tidal amplitude may increase by as much as five percent per century, relying on the published observed trends of Jay (Jay, 2009) and assuming that these trends would continue in the future. This trend was not included in the sensitivity analysis.

25B.4.3 No Project/No Action Alternative Assumptions

In modeling the No Project/No Action Alternative under current climate and sea level conditions, all assumptions are assumed to be "stationary", and represent a level of development and a state of regulations at a point in time. Hydrology is assumed to be stationary in that the 1922 through 2003 hydrologic sequence is assumed for the simulation period, with adjustments to reflect the land use and level of development corresponding to a point in time. Land use and agricultural and municipal and industrial water use and demands, facilities (e.g., reservoirs, conveyance, and diversions), regulatory requirements, policies, and agreements are projected to a future point in time (typically year 2020) and held stationary throughout the simulation period. The projection of the future point in time is governed by criteria compliant with the requirements of the NODOS Project FR as well as the California Environmental Quality Act (CEQA) and the National Environmental Policy Act (NEPA) requirements for the EIR/EIS. A description of the No Project/No Action Alternative assumptions for the CALSIM II model can be found in Appendix 6A.

The No Project/No Action Alternative CALSIM II model for the current climate and sea level conditions was modified to simulate with the inputs for ELT (Q5), LLT (Q5), LLT Q2 and LLT Q4 climate and corresponding sea level conditions. The input hydrology for 22 tributary watersheds of the Central Valley and the ANN model for describing flow-salinity relationships for selected compliance stations in the Delta were modified. In addition, water year type indices and related operating criteria were adjusted to be consistent with the revised hydrology according to regulatory requirements used in the model.

25B.4.4 Anticipated Climate Change Effects

Several climate change effects generally anticipated with the California water resources system and other resources that depend on the system are noted here. Many of the observations are based on generally expected changes under modified climate and sea level. A few of them are based on the simulated results, while others are based on the findings from similar studies such as BDCP (DWR, 2013a and DWR, 2013b).

- Runoff
  - Reduced annual snowpack and natural water storage in late winter and early spring
  - Shift in snowmelt and runoff patterns to occur earlier in the year likely resulting in increase runoff in late winter/early spring and reduced runoff in late spring and summer
  - Uncertain changes in intensity and duration of total precipitation (snow and rain)
  - Uncertain changes in natural recharge and groundwater aquifer storage
- Sea level
  - Increased sea level
  - Increased salinity in the western and central Delta
- Aquatic Habitat
  - Increased water temperatures in reservoirs and rivers
  - Reduced riverine habitat for coldwater fish due to warmer water temperatures throughout all seasons and lower flows during late spring and summer
  - Modified peak and natural pulse flow conditions
  - Altered and uncertain ocean and Delta estuary habitat conditions
- Water Use
  - Reduced river and Delta inflow due to decreases in runoff, specifically in summer months and Dry and Critically Dry year conditions
  - Increased Delta outflow requirements in Dry and Critically Dry year conditions due to increased salinity conditions
  - Increased relative use of reservoir storage to maintain flow, temperature, and Delta salinity requirements

- Seasonal increases in demands per acre for agricultural use of applied water
- Decreased relative use of reservoir storage to meet demands for agricultural and urban water use
- Increased use of groundwater

- Water Operations
  - Decreased reservoir storage conditions in summer and fall
  - Modified SWP and CVP (and other) reservoir operating criteria to manage changes in intensity and duration of peak runoff conditions
  - Uncertain changes in frequency of annual refilling of reservoirs
  - Increased variability and overall decreased water allocations for SWP and CVP Delta exports and other diversions
  - Increased occurrence of water shortages in storage and firm commitments (i.e., senior water rights)
  - Increased occurrence of water shortages in meeting regulatory standards (i.e., D-1641, SWRCB, 2000) and other operation agreements (i.e., Coordinated Operations Agreement, United States and State of California, 1986)

These changes are complex and often interrelated and would lead to significant impacts on the performance of fisheries, water supply, water quality, and power generation of the California water resources system.

In simulating the storage and flows of the No Project/No Action Alternative, the CALSIM II model uses inputs configured for regulations, policies, and other operating criteria. These inputs are based on current water resources system capabilities and feedback from operations experience under current climate and sea level conditions. More simply, both the model and the operations of the water system itself have been "tuned" to what is essentially current climate, hydrology, and system requirements and needs. These inputs were developed through recent history and implemented to provide a certain level of protection for a beneficial result, including for example, flood damage reduction, water supply reliability, water quality, and environmental protection.

For the No Project/No Action Alternative, the regulations, policies, and other operating criteria assumptions are assumed to be "stationary" in the CALSIM II modeling for the NODOS Project climate and sea level sensitivity analysis. It is assumed that the water resources system capabilities and associated operations outcomes are appropriate regardless of climate and sea level scenarios. The changes in the results of the No Project/No Action Alternative under the climate and sea level scenarios are highlighted in Section 25B.5 and selected results compiled in Section 25B.7. The changes in results under the ELT climate and sea level scenario are significant; however, not so large as to warrant reconsideration of these assumptions. The changes under the LLT, and throughout the LLT Q2 though LLT Q4 scenario range, show a substantial alteration of the storage and flows of the No Project/No Action Alternative under potential future climate and sea level conditions. It is reasonable to assume that adaptation (e.g., alteration of water use, additional facilities, and/or modified regulations) will be necessary and desirable such that protections are maintained and priorities are balanced between the competing interests active in California water resources management decisions. The CALSIM II modeling with climate change and sea level rise for the No Project/No Action Alternative did not assume or consider any feedback from the effects of climate change and sea level rise. This sensitivity modeling has not been "tuned" to the new climate change and sea level rise hydrology and effects that are causing some of the undesirable results in the system. One example is the increased occurrence of dead pool storage conditions described below.

25B.4.5 No Project/No Action Alternative Dead Pool Storage Conditions

The CALSIM II model simulations of the No Project/No Action Alternative under all climate and sea level conditions include periods when Shasta Lake and Folsom Lake are at a "dead pool" condition and Delta exports are at minimum health and safety pumping levels. Reservoir storage at or below the elevation of the lowest outlet is considered to be at dead pool levels. Minimum health and safety pumping levels for Delta export are the minimum level of pumping needed to prevent too rapid of a drawdown in San Luis Reservoir, cause interruption of conveyance in the California Aqueduct, or cause risks to health and safety conditions in urban areas due to water shortages.

Table 25B-1 identifies the occurrence of dead pool conditions in major CVP and SWP reservoirs under the No Project/No Action Alternative under current climate and sea level conditions. In the CALSIM II model, dead pool conditions are assumed at 240 thousand acre-feet (TAF) for Trinity Lake, 550 TAF for Shasta Lake and 90 TAF for Folsom Lake. The frequency of dead pool conditions increases under ELT and LLT climate and sea level scenarios.

Table 25B-1
Occurrence of Dead Pool Conditions in CVP and SWP Reservoirs in the No Project/No Action Alternative under Current Climate and Sea Level Conditions

	Total Months with Dead Pool Conditions (out of 984 months)	Water Years with Dead Pool Conditions (out of 82 years)
Trinity Lake	4	3
Shasta Lake	11	4
Lake Oroville	0*	0*
Folsom Lake	12	4

*A significant number of occurrences occur with storage levels below the power outlets.

Figures 25B-5, 25B-6, and 25B-7 show the effect of the projected climate change and sea level rise on the number of occurrences in dead pool conditions at Trinity, Shasta, and Folsom reservoirs, respectively. The dead pool conditions are shown for both the No Project/No Action Alternative and Alternative C using the results from the CALSIM II simulations for Current, ELT (Q5), and LLT (Q5) climate and sea level conditions.

In CALSIM II, when reservoirs are at dead pool conditions, flows may fall short of minimum flow criteria, Delta salinities may exceed standards, diversions may fall short of allocated volumes, and water rights priorities and operating agreements may not be fully met.

The model may reach a numerical solution, but the results of the simulation may not reflect a reasonably expected or feasible outcome. The model solution for the period following these types of events may not be reliable due to these unreasonable or infeasible outcomes.

Figure 25B-5
Trend in Dead Pool Storage Occurrences (Number of Months and Number of Years) at Trinity Reservoir Under Current, ELT (Q5) and LLT (Q5) Climate and Sea Level Conditions for the No Project/No Action Alternative and Alternative C

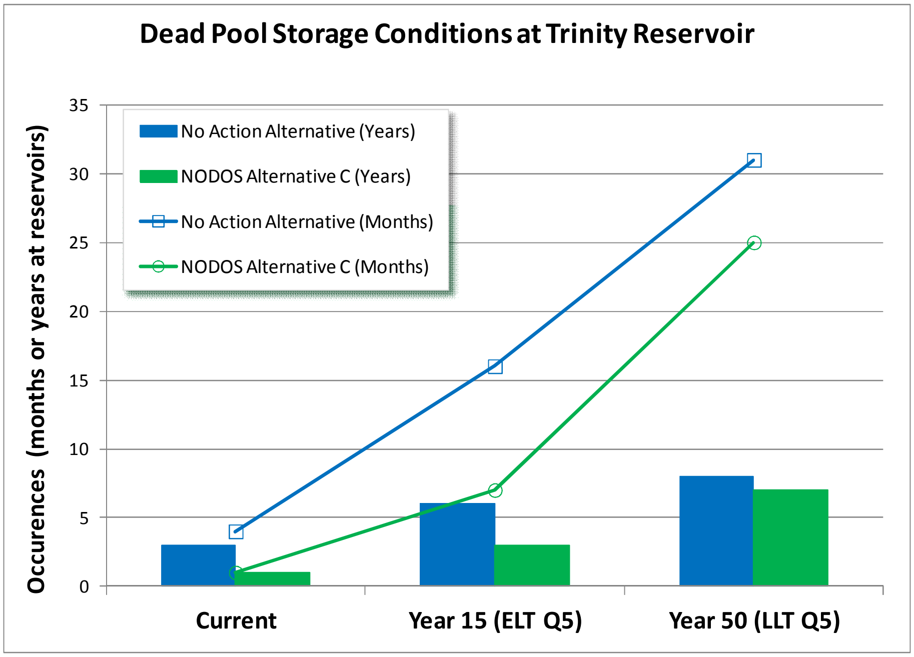


Figure 25B-6
Trend in Dead Pool Storage Occurrences (Number of Months and Number of Years) at Shasta Reservoir Under Current, ELT (Q5), and LLT (Q5) Climate and Sea Level Conditions for the No Project/No Action Alternative and Alternative C

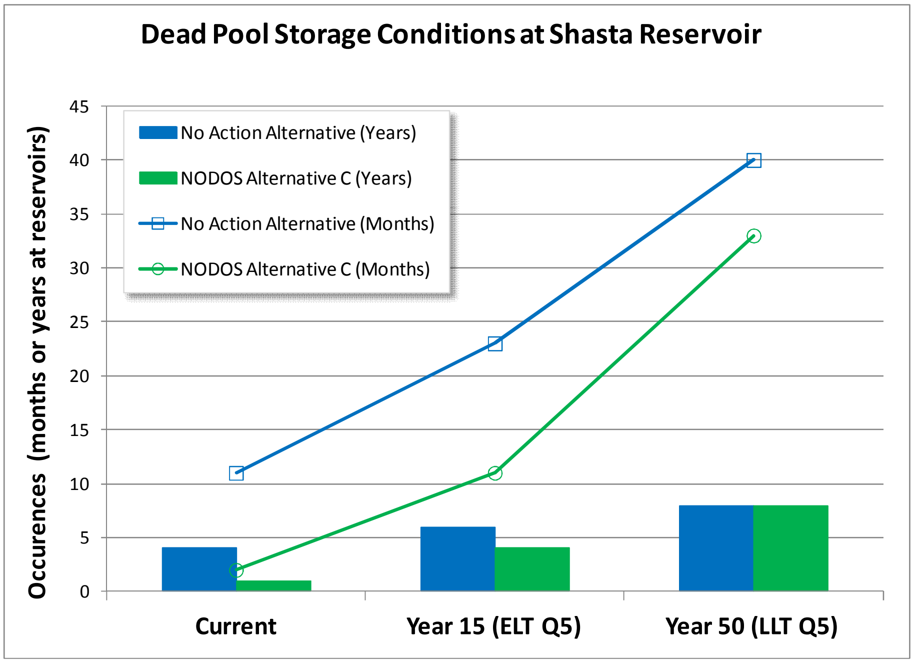
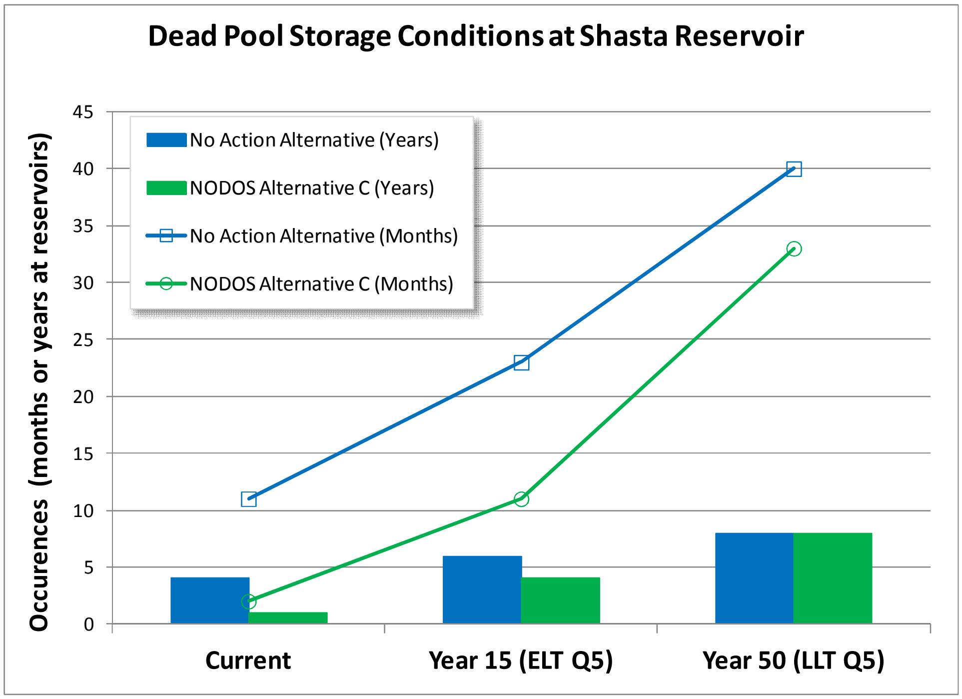


Figure 25B-7
Trend in Dead Pool Storage Occurrences (Number of Months and Number of Years) at Folsom Reservoir Under Current, ELT (Q5) and LLT (Q5) Climate and Sea Level Conditions for the No Project/No Action Alternative and Alternative C



25B.4.6 NODOS Alternatives Assumptions and Operating Criteria

The assumptions specific to modeling of NODOS alternatives are documented in Appendix 6A. All NODOS alternatives include the proposed Sites Reservoir, a combination of existing and proposed Sacramento River intakes and conveyance. All NODOS alternatives use the proposed new storage capacity to achieve the Primary and Secondary Objectives described in Chapter 2 Alternatives Development Process. The Primary Objectives include:

- Increase survival of anadromous fish populations, as well as the health and survivability of other aquatic species
- Improve water supply reliability for agricultural, urban, and environmental uses.
- Improve drinking and environmental water quality in the Delta.
- Support flexible hydropower generation

While the hydropower operation does affect operations of NODOS, the benefits associated with fisheries, water supply, and water quality are not affected. The proposed Sites Reservoir is assumed to be operated in an integrated manner with existing SWP and CVP reservoirs. The foundational idea behind this approach is that operations of the existing system could be improved specifically by increasing the total storage in the water resources system. This integrated storage approach and the operations of the proposed

Sites Reservoir are described in Chapter 3 Description of the Proposed Project/Proposed Action and Alternatives.

As described above, the CALSIM II simulations of the NODOS EIR/EIS Alternatives were developed and "tuned" to the conditions of the existing water resources system. In doing so, the performance of the NODOS alternatives were measured specifically against Existing Conditions and the No Project/No Action Alternative CALSIM II simulations with current climate and sea level conditions. The tuning of the simulations included adjustments to CALSIM II inputs to control the model operations in this order:

1. Operating criteria for diversion of flows from the Sacramento River to fill Sites Reservoir
2. Operating criteria to achieve benefits associated with the primary objectives in specific year types (such as drought or driest periods) and other hydrologic conditions
3. Integrating the operations of Sites Reservoir with the SWP and CVP reservoirs, including Trinity Lake, Shasta Lake, Lake Oroville, and Folsom Lake

This tuning process was iterative using the full suite of hydrologic, operations, water quality, fisheries, power and economics models applied to the detailed evaluation of alternatives. A description of the suite of models is in Appendix 6B. The tuning process involved the following elements and was performed for each individual operational element dependent on the proposed Sites Reservoir:

- Definition of metrics and assessment of alternative for potential beneficiary performance;
- Modification of assumptions and model inputs to improve potential beneficiary performance; and
- Prioritizing potential beneficiary performance according to overall strategy for primary objectives.

In this climate and sea level sensitivity analysis, for each of the NODOS alternatives, the assumptions and tuned inputs related to NODOS are assumed to be "stationary" in the CALSIM II modeling, and are not modified.

Only the CALSIM II model was used for the sensitivity analysis; therefore the information required to provide feedback to the NODOS operating criteria was not available. There was no reconsideration of how potential beneficiaries may have been impacted due to climate change and sea level rise; therefore, no additional refinements of NODOS operating criteria were implemented to target specific needs in the water resources system under climate change and sea level rise.

Following the initial set of sensitivity analyses simulations, with only the CALSIM II model results available, it was evident that some significant changes had occurred in the performance of the NODOS alternatives. The need for storage for Cold Water Pool actions was increased under ELT and substantially more under LLT climate and sea level conditions. A decision was made to limit other operations that would put the higher priority Ecosystem Enhancement Storage Account (EESA) actions related to "coldwater pool" actions at risk. These variations in the NODOS operating criteria assumed throughout the climate and sea level rise scenarios are shown in Table 25B-2.

Table 25B-2
Variations in NODOS Operating Criteria Assumed under Various Climate and Sea Level Conditions

NODOS Primary Objective/Operations Criteria	Current Climate and Sea Level	ELT Climate and Sea Level	LLT Climate and Sea Level
Water Supply Operations			
SWP Contractors	Drought year operation depending on supply		
Level 4 Water Supply for Wildlife Refuges	Long-term operation depending on supply		
CVP Contractors	Long-term operation depending on supply		
Water Quality Operation			
Delta Water Quality	Non-drought operation depending on supply		
Ecosystem Enhancement Storage Account (EESA) Actions/Operation			
EESA-1: Shasta Coldwater Pool	Drought year operation	Increased in attempt to counter climate change impacts on drier years	
EESA-2: Sacramento River Flows for Temperature Control	Drought year operation	Adjusted specific to ELT conditions	None
EESA-3: Folsom Lake Cold Water Pool	Drought year operation	Continued drought year operation	
EESA-4: Stabilize American River Flows	Not explicitly included in CALSIM II modeling		
EESA-5: Delta Outflow for Delta Smelt Habitat Improvement (Summer/Fall)	Non-drought operation depending on supply	None	None
EESA-6: Lake Oroville Coldwater Pool	Drought year operation	Continued drought year operation	
EESA-7: Stabilize Sacramento River Fall Flows	Non-drought operation	None	None
EESA-8: Sacramento River Diversion Reduction at Red Bluff and Hamilton City	Covered under intake operations strategy		

25B.4.7 Considerations

The No Project/No Action Alternative CALSIM II model inputs and outputs have been refined and vetted through the State and federal agencies over the last three years since the USFWS and NMFS Biological Opinions were published (USFWS, 2008; NMFS, 2009). The NODOS Project alternatives CALSIM II model inputs and outputs were refined to achieve the Primary Objectives subject to performance constraints, as analyzed through the results of a full suite of model and analysis tools.

The climate and sea level scenarios have been implemented in the CALSIM II model as a sensitivity analysis and the results do not reflect the potential changes in the No Project/No Action Alternative or NODOS Project alternatives to adapt to the changes between these scenarios and the current climate and sea level conditions. The ability of the CALSIM II model to simulate these climate and sea level scenarios is limited without additional model refinements and including other information and feedback from the full suite of models mentioned earlier. The figures previously presented (Figures 25B-5, 25B-6, and 25B-7) show the effect of the projected climate change and sea level rise on the number of occurrences in dead pool conditions at Trinity, Shasta, and Folsom reservoirs, respectively. These figures demonstrate the need for additional model refinements under the modified climate and sea level. The figures indicate that including the NODOS Project would offset some of the increased dead pool storage conditions.

Additional limitations of the CALSIM II model, in addition to the ones highlighted in this appendix, are documented in Appendix 6B.

The results of the sensitivity analysis should be considered for information purposes only and not used for detailed evaluation. Any conclusions derived from the sensitivity analysis results should be considered to be qualitative and as an indicator of potential changes related to climate change and sea level rise. The results of this analysis should not be used independently for decision making purposes, but rather as supplemental to the detailed evaluations in the EIR/EIS and FR.

If additional analysis is to be performed on future climate and sea level scenarios for the purpose of detailed evaluation of the alternatives, a multiagency review process that includes DWR and Reclamation operations teams should be considered. In addition, the full suite of models used in the NODOS Project detailed evaluation should be used and reevaluation of the alternatives assumptions should be undertaken to refine the representation of the No Project/No Action Alternative and NODOS Project alternatives subject to future climate and sea level conditions.

The NODOS Project represents only one potential opportunity for the State of California and the State and federal agencies to respond to the impacts of and adapt to climate change and sea level rise. An overall strategy of response to climate change and sea level rise is needed. The NODOS Project should be considered in the context of that strategy.

25B.5 Results and Findings

Using 21 CALSIM II model simulations and a selection of 22 parameters, a compilation of figures and tables has been prepared as a tool for planners, resources specialists, and stakeholders to consider the influence of climate change and sea level rise on the NODOS Project and to verify that the EIR/EIS and FR findings are adequate.

Selected model inputs and results for the No Project/No Action Alternative are compiled in Section 25B.7. Selected model results for all alternatives are compiled in Section 25B.8. The format of figures and tables, and guidance for interpretation of results is discussed in this section. Selected results and findings are highlighted and presented.

The tables and figures presented in this appendix are based on the CALSIM II model results for Existing Conditions, the No Project/No Action Alternative, and the No Project/No Action Alternative and Alternatives A, B, and C with each climate and sea level rise condition. The appendix includes tables and figures for the trend of Current, ELT (Q5), and LLT (Q5) climate and sea level scenario results (“ELT and LLT Trend” in the figure or table subtitle) and the range of LLT Q2 and LLT Q4 climate and sea level scenarios results (“LLT Sensitivity” in the figure or table subtitle).

Traditionally, water year types, based on the 40-30-30 index defined in SWRCB D-1641 (SWRCB, 2000), are used to evaluate year type specific results. Due to the changes in inflow and water operations between Current, ELT, and LLT climate and sea level scenarios, the use of water year types is avoided for analysis of results because these definitions, for particular years, have changed across scenarios. Averages of ranges of probabilities are a more useful tool in this circumstance. Results are presented in tables and figures for long-term and upper, above median, below median, and lower quartile range averages. The long-term average is the average of model results over the 82-year simulation period of CALSIM II. The upper quartile range average is the average of the largest 25 percent results, for a given parameter, over the 82-year simulation period of CALSIM II. The upper quartile range average is equivalent to the average result for the parameter over the 0 to 25 percent range of probability of exceedance. Similarly, the above median, below median, and lower quartile range averages are equivalent to the average result for the parameter over the 25 to 50 percent, 50 to 75 percent, and 75 to 100 percent ranges of probability of exceedance, respectively. The lower quartile range average is similar to the combined average of the "Dry" and "Critically Dry" years based on the 40-30-30 index (upper quartile for X2 position).

25B.5.1 No Project/No Action Alternative Compilation of Results

Selected model inputs and results for the No Project/No Action Alternative are compiled in Section 25B.7. This compilation is helpful to understand the magnitude of potential changes in the No Project/No Action Alternative due to climate change and sea level rise.

Using the five CALSIM II model simulations of the No Project/No Action Alternative, simulated using the Current, ELT (Q5), LLT (Q5), LLT Q2, and LLT Q4 climate and sea level scenarios, selected model inputs and results for the No Project/No Action Alternative are compiled for six CALSIM II model input parameters and 11 CALSIM II model output parameters.

For each parameter, CALSIM II results are presented for the No Project/No Action Alternative at each climate and sea level rise condition. The compilation includes tables and figures showing monthly and annual changes in the parameter between each ELT and LLT, when compared to the current climate and sea level scenario.

The results are shown in tables as monthly and annual values, and differences with the current climate and sea level scenario. The results are shown graphically as monthly values using columns to show the Current, ELT (Q5), and LLT (Q5) climate and sea level scenario results and dashed lines showing the upper and lower bounds of the LLT Q2 and LLT Q4 climate and sea level scenario results. The figures and tables are shown for long-term, and lower and upper quartile range averages.

25B.5.2 No Project/No Action Alternative Findings

Based upon the results of the ensemble approach used to select the climate and sea level scenarios for this analysis, as documented in Section 25B.3 and related references (DWR, 2013a and DWR, 2013b), the following are expected:

- The trend over the 50-year period based on the Current, ELT (Q5), and LLT (Q5) scenarios would be primarily the result of increases in temperature in the climate projections that are part of the inner-quartile (25th to 75th percentile) of the collection of 112 climate projections used, and the sea levels selected at ELT and LLT
- The potential range in LLT Q2 and Q4 scenario differences would be primarily the result of uncertainty in total precipitation and the degree of warming in the collection of climate projections used in each ensemble

Based on the trend seen in Current, ELT (Q5), and LLT (Q5) scenarios, and to some extent the potential range in LLT Q2 and Q4 scenario differences, the following expectations have been confirmed based on the results of VIC simulations of the climate and sea level scenarios selected and the subsequent results of CALSIM II simulations of the No Project/No Action Alternative based on these scenarios:

- Increased runoff in late winter/early spring and reduced runoff in late spring and summer
- Increased salinity in the western and central Delta
- Reduced river and Delta inflow due to decreases in runoff, specifically in summer months and Dry and Critically Dry year conditions
- Increased Delta outflow requirements in Dry and Critically Dry year conditions due to increased salinity conditions
- Increased relative use of reservoir storage to maintain flow, temperature, and Delta salinity requirements
- Decreased relative use of reservoir storage to meet demands for agricultural and urban water use
- Decreased reservoir storage conditions in summer and fall and uncertain changes in frequency of annual refilling of existing reservoirs
- Increased variability and overall decreased water allocations for SWP and CVP Delta exports and other diversions
- Increased occurrence of dead pool storage and potential operational interruptions

As previously noted, the sensitivity analysis did not include the full suite of models (Appendix 6B), including daily operations, temperature, fisheries and economics. However, the CALSIM II results indicate changes in flows and storage conditions from the Current, ELT (Q5), and LLT (Q5) scenario trend and to some extent the potential range of LLT Q2 and Q4 scenarios such that the following is expected (but has not been confirmed with modeling):

- Increased water temperatures in reservoirs and rivers
- Reduced riverine habitat for cold water fish due to warmer water temperatures throughout all seasons and lower flows during late spring and summer
- Modified peak and natural pulse flow conditions

The changes in monthly and annual inflows for Shasta Lake, Sacramento River, Trinity Lake, Folsom Lake, and Lake Oroville, in the No Project/No Action Alternative between the Current and all ELT and LLT climate and sea level scenarios, are shown in Table 25B-8 through 25B-13 and Figures 25B-8 through 25B-13 in Section 25B.7.

The impacts of climate change on long-term average annual inflows are summarized in Table 25B-3. Between Current, ELT (Q5), and LLT (Q5) climate scenarios, there would be little change in long-term average annual inflow across these watersheds. However, there is a large degree of uncertainty as shown between the range of values for LLT Q2 and Q4 climate scenarios, with a range of -19 to +21 percent around the LLT climate scenario. This variation is due to the uncertainty regarding the precipitation impacts of climate change, as discussed in Section 25B.3 and related references (DWR, 2013a and

DWR, 2013b). These variations in average annual inflow would increase in relative magnitude the wetter the year and would decrease in relative magnitude the drier the year. Upper and lower quartile averages are compiled in the Figures 25B-8 through 25B-13 and Tables 25B-8 through 25B-13 of Section 25B.7.

Table 25B-3
Impacts of Climate Change on Long-Term Average Annual Inflows at Shasta Lake, Sacramento River, Trinity Lake, Folsom Lake, and Lake Oroville

Climate Scenario:	Current	ELT (Q5)	LLT (Q5)	LLT Q2	LLT Q4
Location	Annual Inflow (TAF)	Change in Annual Inflow from Current (TAF and Percent change)			
Shasta Lake	5,690	+45 (1%)	+98 (2%)	-779 (-14%)	+1021 (18%)
Sacramento River, Keswick Dam to Hamilton City	2,993	+51 (2%)	+40 (1%)	-338 (-11%)	+450 (15%)
Sacramento River, Keswick Dam to Delevan Intake	4,073	+59 (1%)	+46 (1%)	-386 (-9%)	+515 (13%)
Trinity Lake	1,277	+2 (0%)	+23 (2%)	-241 (-19%)	+271 (21%)
Folsom Lake	1,342	-6 (0%)	-41 (-3%)	-253 (-19%)	+168 (13%)
Lake Oroville	3,967	+69 (2%)	+54 (1%)	-551 (-14%)	+616 (16%)

The basins most sensitive to both temperature and precipitation impacts of climate change are the upper watersheds that depend on snowmelt for runoff. The basins that provide the majority of the inflow to SWP and CVP reservoirs are basins with significant runoff from snowmelt. In contrast, the lower elevation tributaries, along the Sacramento River and San Joaquin rivers, have less runoff from snowmelt and, therefore, are not as sensitive to the temperature impacts of climate change that is the cause of changes in snowmelt runoff.

A sample of the impacts of climate change on the timing of inflows, due to changes in snowmelt runoff, is shown in Table 25B-4. The months of February and June were selected to give an indication of the types of changes in patterns that occur between a snowmelt runoff fed location, such as Shasta Lake, when compared to a location (region of reaches) that is not. This table shows the long-term average February and June inflows at Shasta Lake and along the Sacramento River between Keswick Dam to Hamilton City and Keswick Dam to the proposed Delevan Intake and the relative changes that would occur in the pattern of inflows during these two selected months.

Between Current, ELT (Q5), and LLT (Q5) climate scenarios, there would be a dramatic change in inflows at Shasta Lake that are concentrated into late winter/early spring period as indicated by the February values. Similar to the annual average values, there is a large degree of uncertainty, as shown by the range of values for LLT Q2 and Q4 climate scenarios. Similarly, there would be an opposite set of changes in the late spring and summer, as indicated by the June values.

Between Current, ELT (Q5), and LLT (Q5) climate scenarios, the change in inflows along the Sacramento River downstream of Keswick Dam would be much less in magnitude and relative degree, when compared to Shasta Lake. The remainder of the long-term, wet year (upper quartile), and Dry year (lower quartile) monthly pattern averages are compiled in the Figures 25B-8 through 25B-13 and Tables 25B-8 through 25B-13 of Section 25B.7.

Table 25B-4
Impacts of Climate Change on Long-Term Average Selected Monthly Inflows at Shasta Lake and Sacramento River Inflow Patterns

Climate Scenario:		Current	ELT (Q5)	LLT (Q5)	LLT Q2	LLT Q4
Location	Month	Monthly Inflow (TAF)	Change in Monthly Inflow from Current (TAF and Percent change)			
Shasta Lake	Feb	803	+69 (9%)	+126 (16%)	-65 (-8%)	+317 (39%)
	Jun	326	-39 (-12%)	-67 (-21%)	-112 (-34%)	-7 (-2%)
Sacramento River, Keswick Dam to Hamilton City	Feb	557	+17 (3%)	+23 (4%)	-60 (-11%)	+106 (19%)
	Jun	113	-1 (-1%)	-5 (-4%)	-21 (-18%)	+14 (13%)
Sacramento River, Keswick Dam to Delevan Intake	Feb	855	+18 (2%)	+25 (3%)	-72 (-8%)	+121 (14%)
	Jun	128	-1 (-1%)	-4 (-3%)	-22 (-17%)	+16 (12%)

As shown in Tables 25B-3 and 25B-4, there would be a significant increase in runoff in late winter/early spring and reduced runoff in late spring and summer due to climate change. This change is driven by increase in temperature and decrease in snowmelt runoff in basins with significant snowmelt under current climate conditions.

The change in magnitude and pattern of inflows associated with the 22 tributary watersheds of the Central Valley, in addition to the impacts of sea level rise, would drive many changes in the water resources system as modeled in CALSIM II.

To investigate the potential impact of sea level rise on increased salinity in the western and central Delta, a CALSIM II simulation was prepared with inflows based on the current climate scenario but with a revised ANN based on an assumed sea level rise of 45 cm (18 inches), as was assumed for all LLT scenarios. This simulation is denoted as climate and sea level scenario LLT Q0. The results for the X2 position and Delta outflow for the No Project/No Action Alternative for climate and sea level scenarios LLT Q0 and LLT are shown in Table 25B-14 through 25B-15 and Figures 25B-14 through 25B-15 in Section 25B.7. These results show that sea level rise would overwhelmingly drive the increasing salinity shown in the LLT scenarios (and by inference the ELT scenario). Under the LLT Q0 scenario, the No Project/No Action Alternative long-term average results show an upstream shift in X2 position of as much as 1.2 to 3.1 kilometers (km) would occur during the February through June period of compliance for SWRCB D-1641 (SWRCB, 2000). The Dry year (upper quartile for X2 position) average results show an upstream shift in the X2 position of as much as 1.1 to 2.2 km would occur during the February through June period. The associated change in flows associated with this change in X2 position is shown in the Dry year (lower quartile) results for Delta outflow. As indicated by the Dry year (lower quartile) results, average Delta outflow requirements associated with compliance of D-1641 X2 requirements could increase on the order of 200 to 700 cfs and an overall increase in Delta outflow of seven percent or more than 400 TAF/year (yr) during the Dry years (lower quartile) of the CALSIM II simulation period. This is not necessarily the case throughout the range of the LLT Q2 and Q4 scenarios in which uncertain changes in precipitation could also significantly impact salinity in the western and central Delta differently from what is shown in the LLT Q0 and LLT scenarios.

Given the (1) impact of temperature and change in magnitude and pattern of inflows and (2) impact of sea level rise on western and central Delta salinity, along with (3) no changes in regulatory requirements for minimum instream flows and Delta salinity standards (stationary assumption discussed in Section 25B.4), the result of this interaction in CALSIM II would be decreased summer and Dry year (lower quartile) flows in the Sacramento and San Joaquin Rivers and increased summer and Dry year (lower quartile) flows and outflow requirements for the Delta.

The changes in monthly and annual flows for the Sacramento River downstream of Keswick Dam, Sacramento River downstream of Hood, and San Joaquin River at Vernalis, in the No Project/No Action Alternative between the Current and all ELT (Q5) and LLT (Q5) climate and sea level scenarios, are shown in Tables 25B-16 through 25B-18 and Figures 25B-16 through 25B-18 in Section 25B.7.

The changes in monthly and annual outflows from the Sacramento and San Joaquin River Delta and X2 position in the No Project/No Action Alternative between the Current and ELT (Q5) and all LLT climate and sea level scenarios are shown in Tables 25B-19 through 25B-20 and Figures 25B-19 through 25B-20 in Section 25B.7.

River flows would be reduced in late spring and summer months between Current, ELT (Q5), and LLT (Q5) climate scenarios. The pattern of the reduction follows the pattern seen in the reduction of reservoir and tributary inflows to the river. On the Sacramento River, long-term average flows would decrease three percent throughout summer months up to 10 percent in late summer months of Dry years (lower quartile). On the San Joaquin River, long-term average flows would decrease in the range of 10 to 15 percent in summer months, primarily in wetter years (upper quartile) with reductions of four percent typically in summer months of Dry years (lower quartile).

River flows would vary dramatically throughout the range of the LLT Q2 and Q4 climate scenarios. The LLT Q2 scenario results show an average reduction of flow of 13 to 14 percent on the Sacramento River and a reduction of 22 percent on the San Joaquin River inflow into the Delta, when compared to the Current scenario. The LLT Q4 scenario results show an average increase of flow of approximately 10 percent on the Sacramento River and an increase of 16 percent on the San Joaquin River inflow into the Delta.

Between Current, ELT (Q5), and LLT (Q5) climate scenarios, long-term average Delta outflow during summer months would vary from little change in the ELT (Q5) scenario to an increase in the LLT (Q5) scenario. However month-to-month changes are highly variable. For example, April and May outflows would be reduced approximately 15 percent under the LLT scenario; however, October would be increased by 40 percent. This highly variable response is symptomatic of sea level rise and its impacts on salinity control throughout the western and central Delta and requirements to maintain compliance with D-1641 standards and manage changes in Delta export conditions.

Long-term average annual Delta outflow shows that a reduction would occur of 15 percent under LLT Q2 and an increase of 24 percent under Q4 climate scenarios. However, throughout the range of all ELT and LLT scenarios, the change in the Dry year (lower quartile) average impacts varies from a reduction of three percent under the LLT Q2 to an increase of 18 percent under the Q4 scenario with the LLT trend line showing that an increase of six percent would occur. The changes in X2 position are an inverse response to the changes in Delta outflow. Even though the range of impact to the X2 position would vary according to Delta outflow conditions, the X2 position moves further eastward (more positive) under ALL climate and sea level scenarios, when compared to the Current scenario. The X2 position is almost always impacted adversely (more positive) in every statistic for every scenario (e.g., monthly, long-term average, and/or upper and lower quartile). The only exception is in the fall months of the LLT Q4 scenario.

The expected change in X2 position is due both to a shift in inflows earlier in the spring and subsequent increase in outflow due to larger unregulated flows, as well as SWP and CVP storage withdrawals to comply with X2 criteria, based on the SWRCB D-1641 (SWRCB, 2000), as well as the Action 4, Fall X2 action, of the USFWS Biological Opinion (USFWS, 2008).

The result would be a reduced amount of water available in storage to manage environmental, water quality, and water supply objectives, as well as a greater dependency on storage withdrawals to manage late spring and summer time Delta water quality requirements.

The changes in storage conditions for Trinity Lake, Shasta Lake, Lake Oroville, and Folsom Lake, in the No Project/No Action Alternative between the Current and all ELT and LLT climate and sea level scenarios, are shown in Table 25B-21 through 25B-25 and Figures 25B-21 through 25B-25 in Section 25B.7.

The changes in monthly and annual exports from the Sacramento-San Joaquin River Delta through Banks and Jones pumping plants, in the No Project/No Action Alternative between the Current and all ELT and LLT climate and sea level scenarios, are shown in Table 25B-26 and Figure 25B-26 in Section 25B.7.

Between Current, ELT (Q5), and LLT (Q5) climate scenarios, long-term average total September carryover in all SWP and CVP reservoirs would decrease by eight percent in the ELT (Q5) scenario and would decrease by 18 percent in the LLT (Q5) scenario. The Dry year (lower quartile) average carryover in SWP and CVP reservoirs would decrease by 13 percent in the ELT (Q5) scenario and would decrease by 26 percent in the LLT (Q5) scenario. Over the range of the LLT Q2 and Q4 climate scenarios, long-term average September carryover in SWP and CVP reservoirs would decrease by 34 percent in the LLT Q2 scenario and would decrease by four percent in the LLT Q4 scenario, when compared to the Current scenario. As shown in the detailed results, storage under Q4 would be higher in most other months. The slight reduction in September under Q4 may be an artifact of how the operations are tuned in CALSIM II to achieve carryover storage targets that are common under current conditions. The increased inflows are translated into increased releases from storage, to capture and store at the NODOS Project, to provide additional flow to meet Delta salinity requirements, to provide deliveries, to meet the ecosystem enhancement actions, in addition to potentially increased spills under Q4.

Under all future climate scenarios, there would be an increase in uncertainty as to how frequently reservoirs would be able to refill and remain full through the spring flood period. The expected substantial systemwide losses in flows in late spring and early summer indicated by projected changes in inflows to the reservoirs as well as flows in the rivers and Delta outflow would cause storage to be depleted more frequently and earlier in the summer season. Loss of flexibility in reservoir operations would limit the capability to manage storage and flow for all water uses, with a significant impact on the ability to manage temperature- and flow-based habitat for coldwater fisheries downstream of the reservoirs.

Between Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios, long-term average Delta export at Banks and Jones pumping plants would decrease by 3 percent in the ELT (Q5) scenario and a decrease by nine percent in the LLT (Q5) scenario. The dry year (lower quartile) average Delta export would decrease by five percent in the ELT (Q5) scenario and would decrease by 15 percent in the LLT (Q5) scenario. Over the range of the LLT Q2 and Q4 climate scenarios, long-term average Delta exports would decrease by 21 percent in the LLT Q2 scenario and by 0 percent in the LLT Q4 scenario, when compared to the Current scenario. Late Spring and Summer are when exports would be impacted the most.

Due to the impact of climate change and sea level rise, the decreasing performance and increasing uncertainty of storage and Delta export conditions would impact SWP and CVP water supply allocations and water deliveries in similar magnitude as the impact on Delta exports.

As mentioned in Section 25B.4, even under Current scenario conditions, there are times when dead pool conditions exist and Delta exports would not be able to sustain minimal health and safety Delta export pumping conditions. With the impacts on storage and Delta flows and exports shown above, there would be an increased frequency of dead pool conditions and Delta export pumping below health and safety pumping conditions under all ELT and LLT climate and sea level scenarios. These conditions would lead to more frequent water delivery interruptions, regulatory compliance issues for ecosystems, and water quality protections.

25B.5.3 NODOS Alternatives Compilation of Results

Selected model results for all alternatives are compiled in Section 25B.8. This compilation is helpful to understand the magnitude of potential changes in the NODOS Project alternatives due to climate change and sea level rise.

Using all 21 CALSIM II model simulations, simulated using the Current, ELT (Q5), LLT (Q5), LLT Q2, and LLT Q4 climate and sea level scenarios, selected model results for all alternatives are compiled for 22 CALSIM II model output parameters.

For each parameter, CALSIM II results are presented for Existing Conditions, the No Project/No Action Alternative, and the No Project/No Action Alternative and Alternatives A, B, and C with each climate and sea level rise condition. The compilation includes tables and figures showing annual, seasonal, and selected monthly changes in the parameter, and between each NODOS Project alternative and the No Project/No Action Alternative, at climate and sea level scenarios.

The results are shown in tables as seasonal, annual, and selected monthly values, and differences with the Current climate and sea level scenario, and differences with the No Project/No Action Alternative for Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios. The tables are shown for long-term and upper, above median, below median, and lower quartile range averages. The results are shown graphically as seasonal, annual, and selected monthly values ranked and charted against probability of exceedance. The figures show the whole range of probability.

The tables and figures for each parameter, and seasonal, annual, and selected monthly statistics, are grouped to present the Current, ELT (Q5), and LLT (Q5) climate and sea level scenario results first and the LLT Q2 and LLT Q4 climate and sea level scenario results second.

25B.5.4 NODOS Alternatives Findings

Based on the comparison of the NODOS Project alternatives with the No Project/No Action Alternative evaluated across Current, ELT (Q5), and all LLT climate and sea level scenarios, the following expectations have been confirmed based on the results of CALSIM II simulations of these scenarios:

- The ability to divert water into NODOS Project storage would be the same or increased slightly due to changes in the timing of snowmelt runoff and the continued opportunity to use the intakes under a wide range of climate scenarios
- The NODOS Project alternatives could provide a similar array of potential benefits under a wide range of climate and sea level scenarios, including the primary objectives of (1) increasing survival of anadromous fish populations, (2) improving water supply reliability for agricultural, urban, and environmental uses, and (3) improving drinking and environmental water quality in the Delta
- The NODOS Project alternatives could be operated to potentially mitigate some of the effects of climate change and sea level rise, specifically related to climate change impacts on storage operations and associated increase in vulnerability of the water resources system to operational interruption

The sensitivity analysis did not include the full suite of models (Appendix 6B), including daily operations, temperature, fisheries, and economics modeling. However, the CALSIM II results indicate changes in flows and storage conditions between the NODOS Project alternatives and the No Project/No Action Alternative, throughout the Current, ELT (Q5), and all LLT scenarios, such that the following is expected (but has not been confirmed with modeling):

- The environmental impact of the NODOS Project alternatives, relative to the No Project/No Action Alternative, under climate change and sea level rise, are likely to be similar or less than the impacts determined under the current climate and sea level scenario used in the detailed evaluation in the EIR/EIS
- The relative value of ecosystem enhancement and other similar “non-economic” values of the NODOS Project alternatives, evaluated in the FR, are likely to increase relative to the No Project/No Action Alternative, given that the performance of ecosystem and water quality-related storage and flow conditions in the No Project/No Action Alternative would decrease with climate change and sea level rise
- The relative economic value of the NODOS Project alternatives, evaluated in the FR, is likely to increase relative to the No Project/No Action Alternative, given that the performance of water supply reliability for agricultural, urban, and environmental uses of the No Project/No Action Alternative would decrease with climate change and sea level rise

The indicators of changes in flows and storage conditions and how they relate to the findings of the EIR/EIS and FR are discussed in this section.

The annual flows to fill Sites Reservoir (Funks Reservoir to Sites Reservoir flows) from the Sacramento River intakes, for all NODOS Project alternatives, for ELT and LLT climate and sea level scenarios, are shown in Tables 25B-28-1 and 25B-28-2 and seasonal flows in Tables 25B-29-1 and 25B-29-2 in Section 25B.8. Figures 25B-28-1 through 25B-29-8 show the same results in exceedance probability charts.

Between Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios, for all NODOS Project alternatives, long-term annual average flows to fill Sites Reservoir would increase in the ELT (Q5) and LLT (Q5) scenarios. Annual flows to fill Sites Reservoir would generally increase in LLT Q2 and Q4 scenarios as well. Results for Alternatives A and C show that larger relative increases and fewer potential reductions would occur than for Alternative B. The results for the upper, above median, below median, and lower quartile show changes that would be consistent with the long-term averages. The results for seasonal flows show changes that would be consistent with the annual averages, with the exception of the July through September season which shows that a reduction in flows in the upper quartile would occur.

The increase of flows to fill Sites Reservoir, for all NODOS Project alternatives under all climate and sea level scenarios demonstrates the expected resilience of the NODOS Project alternatives in capturing excess flows and storage of these flows for later use for the primary objectives of (1) increasing survival of anadromous fish populations, (2) improving water supply reliability for agricultural, urban, and environmental uses, and (3) improving drinking and environmental water quality in the Delta. This finding is consistent with and supported by the finding of increased runoff in late winter/early spring due to increase temperatures on the timing of snowmelt runoff in the ELT and LLT scenarios. It also appears that the opportunity to use the intakes to fill Sites Reservoir (sustain the number of days each year for which intakes divert flows) is not significantly impaired by the uncertainty in precipitation in the LLT Q2 and Q4 scenarios. The use of the CALSIM II and USRDOM models to analyze daily flow variability is documented in Appendix 6B.

The end-of-May and end-of September storage in Sites Reservoir, for all NODOS Project alternatives, for ELT and LLT climate and sea level scenarios, is shown in Tables 25B-30-1 and 25B-30-2 in Section 25B.8. Figures 25B-30-1 through 25B-30-4 show the same results in exceedance probability charts.

Between Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios, for all NODOS Project alternatives, long-term average end-of-May and end-of September storage in Sites Reservoir would decrease in the ELT (Q5) and LLT (Q5) scenarios. End-of-May and end-of September storage Sites Reservoir would be substantially lower in LLT Q2. LLT Q4 results would be similar to the Current scenario. Results for Alternative B would be relatively lower under ELT (Q5), LLT (Q5), and LLT Q2 scenarios, when compared to the Current scenario results in contrast to Alternative C (also an alternative with 1.81-MAF storage capacity) which performs relatively better. The results for the upper, above median, below median, and lower quartile show changes consistent with the long-term averages.

In NODOS Project alternatives, Site Reservoir storage conditions would decrease consistent with the trend seen in existing SWP and CVP storage across ELT and LLT climate and sea level scenarios. This downward trend in storage is observed in the No Project/No Action Alternative and all NODOS Project alternatives scenarios across ELT and LLT climate and sea level scenarios. The rate of decline in storage conditions would be slowed by the addition of Sites Reservoir to the water resources system. The increase of flows to fill Sites Reservoir, for all NODOS Project alternatives under all climate and sea level scenarios, coupled with the decrease in Sites Reservoir storage conditions relative to the Current scenario indicates that Sites Reservoir would be filling and releasing higher rates of flow and potentially producing greater levels of benefits as climate change and sea level rise worsens.

The end-of-May and end-of September storage in the total Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake, and Sites Reservoir, for all NODOS Project alternatives, for ELT and LLT climate and sea level scenarios, is shown in Tables 25B-31-1 and 25B-31-2 in Section 25B.8. Figures 25B-31-1 through 25B-31-4 show the same results in exceedance probability charts. The individual results for Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake, and Sites Reservoir are shown in Tables 25B-32-1 and 25B-32-2, Tables 25B-33-1 and 25B-33-2, Tables 25B-41-1 and 25B-41-2, Tables 25B-43-1 and 25B-43-2, and Tables 25B-31-1 and 25B-31-2 respectively (in Section 25B.8). Each set of tables has an associated set of exceedance probability charts that follow.

Between Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios, for all NODOS Project alternatives, long-term average end-of-May and end-of September storage in Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake, and Sites Reservoir would decrease in the ELT (Q5) and LLT (Q5) scenarios. End-of-May and end-of September storage would be substantially lower in LLT Q2. LLT Q4 results would be similar to the Current scenario. The results for the upper, above median, below median, and lower quartile show changes that would be consistent with the long-term averages. These trends are similar to what would be seen for each other individual CVP and SWP reservoir in the water resources system.

These trends would be similar; however, not as large as the trends seen in the No Project/No Action Alternative. The distinct difference in these trends in total storage between the NODOS Project alternatives and the No Project/No Action Alternative is that the No Project/No Action Alternative results show an expected substantial loss in systemwide storage due to climate change and sea level rise. The NODOS Project alternatives show that improved storage over the No Project/No Action Alternative would occur. As climate change and sea level effects increase, the gain in storage over the No Project/No Action Alternative (without climate change and sea level rise) is lost. The results over the ELT (Q5) and LLT (Q5) trend show that the NODOS Project alternatives could mitigate the loss in storage associated with the ELT (Q5) scenario and, depending on the alternative, much of the loss in storage associated with the LLT (Q5) scenario. The NODOS Project alternatives could not mitigate for the loss in storage in LLT Q2 scenario; other adaptation measures would be needed in addition to increased storage capacity to manage the impact of climate change and sea level rise on system storage.

The performance of the NODOS Project alternatives to accomplish the Primary Objectives depends primarily on the ability of the alternative to store and manage additional flows not otherwise available in the No Project/No Action Alternative.

For the primary objective of increasing survival of anadromous fish populations, the highest priority is to maintain improved storage conditions through the Dry years (lower quartile) and summer months (July through September season). The improvement in storage conditions during these periods would retain cooler water (coldwater pool improvement) and more water (releases) for maintaining temperature conditions in the river reaches downstream of these reservoirs. As indicated by the improvement in beginning, end-of-May, storage and the ending, end-of-September, storage, there would be a potential improvement in temperature conditions downstream of Trinity Lake, Shasta Lake, Lake Oroville, and Folsom Lake due to the NODOS Project alternatives, when compared to the No Project/No Action Alternative, when compared at the same climate and sea level scenario. This was found to be the case under the Current scenario evaluated in the FR and in the detailed evaluation of the EIR/EIS. Consistent with the intent of the NODOS Project alternatives operations, the most substantial relative improvement in storage would be at Shasta Lake.

Anadromous fish populations depend on both temperature and flow dependent habitat conditions. For completeness, the seasonal average flows downstream of the existing reservoirs, for Sacramento River downstream of Keswick Reservoir (downstream of Shasta Lake), Feather River downstream of Thermalito (downstream of Lake Oroville), and American River downstream of Watt Avenue (downstream of Folsom Lake) are shown in Tables 25B-34-1 and 25B-34-2, Tables 25B-42-1 and 25B-42-2, and Tables 25B-44-1 and 25B-44-2 respectively (in Section 25B.8). Each set of tables has an associated set of exceedance probability charts that follow.

The improvement in storage conditions during the Dry years (lower quartile) and summer months (July through September season) for cooler water (coldwater pool improvement) and more water, is translated into temperature- and flow-dependent habitat improvements through increases in releases during Dry years (lower quartile) and summer months (July through September season) from the reservoirs. Between Current, ELT, and LLT climate and sea level scenarios, for all NODOS Project alternatives, Dry year (lower quartile) and summer (July through September) flows, Shasta Lake, and Lake Oroville would be increased in ELT (Q5) and all LLT scenarios as in the Current scenarios. The results for the below median and summer flows generally also show that these improvements would occur. The results of the storage and flow trends for Dry year (lower quartile) and summer (July through September) flows indicate that NODOS Project alternatives would continue to perform strongly for the Primary Objective of increasing survival of anadromous fish populations as climate change and sea level rise occurs.

The annual total exports at Banks and Jones pumping plants, for all NODOS Project alternatives, for ELT and LLT climate and sea level scenarios, are shown in Tables 25B-48-1 and 25B-48-2 in Section 25B.8. Figures 25B-48-1 through 25B-48-2 show the same results in exceedance probability charts. The exports at Banks Pumping Plant are shown in Tables 25B-49-1 and 25B-49-2.

Between Current, ELT (Q5), and LLT (Q5) climate and sea level scenarios, for all NODOS Project alternatives, long-term average annual total exports at Banks and Jones pumping plants would increase from the No Project/No Action Alternative consistently. There would be variations in these changes across climate scenarios as the changing conditions for Delta exports would vary. This variation was described in the No Project/No Action Alternative. The NODOS Project alternatives operations would dynamically adapt to the changing regulation, allocations, and the opportunity to export flow through the pumping plants. The values vary more in the LLT Q2 and Q4 results. Across all climate and sea level scenarios below median and Dry year (lower quartile) averages show expected strong exports throughout, due to the NODOS Project alternatives, with the absolute and relative magnitude of improvement increasing as the effect of climate change and sea level rise increases.

Under the No Project/No Action Alternative, LLT (Q5) and LLT Q2 scenarios, in particular, the impact of climate change and sea level rise would appear to reduce Delta exports to a degree that there is likely an increase in available conveyance capacity for exporting additional flows from the NODOS Project alternative or other supplies.

The expected relative increase in annual total exports under below median and Dry year (lower quartile) average conditions is a strong driver of the economic impact of the Primary Object of improving water supply reliability for urban uses. The economic value of a given increment of water for urban use would increase as the "without Project supply condition" would deteriorate with climate change and sea level rise. The results of the sensitivity analysis indicate that the increment of water provided by the NODOS Project alternatives could increase even as overall system supply would decrease. The Primary Objective of water supply reliability also includes agricultural and environmental uses (such as wildlife refuge supplies). The economic value of each of these supplies would be increased by storing and exporting these supplies through the Delta and making them available to the south-of-the-Delta water resources system.

The results of the absolute and relative trends, when compared to the No Project/No Action Alternative for below median and Dry year (lower quartile) pumping at Banks and Jones pumping plants indicate that NODOS Project alternatives would continue to perform strongly for the Primary Objective of increasing water supply reliability and indicate a trend of increases economic value of the exports as climate change and sea level rise occurs.

The seasonal average X2 position and Old River at Rock Slough salinity conditions are shown in Tables 25B-50-1 and 25B-50-2 and Tables 25B-51-1 and 25B-52-2, respectively (in Section 25B.8). Figures 25B-50-1 through 25B-51-8 show the same results in exceedance probability charts.

Between Current, ELT, and LLT climate and sea level scenarios, for all NODOS Project alternatives, the X2 position and Old River at Rock Slough salinity conditions would be improved during the April through December seasons. An improvement is indicated by a reduction in the X2 position (distance from the Golden Gate Bridge in km) or a reduction in electrical conductivity (EC). The No Project/No Action Alternative results showed that the degree of impact to the X2 position would vary according to Delta outflow conditions, and the X2 position would move further eastward (more positive) under ALL climate and sea level scenarios, when compared to the Current scenario. This would also be the case for Old River at Rock Slough salinity (EC).

The improvement shown in the ELT and LLT scenarios, between NODOS Project alternatives and the No Project/No Action Alternative at a specific climate and sea level condition is due to the operation of the NODOS Project for supplemental Delta outflows for improving water quality conditions for urban intakes and environmental benefit in the Delta. These releases would occur in the summer (July through September) and fall (October through December) seasons. The effectiveness of improving Delta water quality conditions with supplemental releases from the NODOS Project would decrease with sea level rise. Under ELT (Q5) and LLT Q4 scenarios, the releases would be less effective than under the Current scenario; however, under LLT (Q5) and LLT Q2, the effectiveness of releases would diminish. For this reason, the Ecosystem Enhancement Storage Account (EESA) Action 5, Delta outflow for Delta Smelt Habitat Improvement, was removed from the sensitivity analysis (EESA Action 5 is described in Chapter 3 and Appendix 6A).

The results of the X2 position and Old River at Rock Slough salinity results indicate that in summer and fall seasons (July through December) there would be a potential benefit of operating the NODOS Project alternatives for the Primary Objective of improving drinking and environmental water quality in the Delta.

Additional results of the sensitivity analysis, not discussed in this section, are included in Section 25B.8. Results for the NODOS Project elements are available, including T-C Canal Intake at Red Bluff (Tables 25B-35-1 and 25B-35-2), GCID Canal Intake at Hamilton City (Tables 25B-36-1 and 25B-36-2), and Delevan Intake and Pipeline diversion operation and discharge operation (Funks Reservoir to Delevan Pipeline) (Tables 25B-38-1 and 25B-38-2 and Tables 25B-39-1 and 25B-39-2, respectively). Additional model results of flows in the Sacramento River are also available, including Sacramento River downstream of Hamilton City, downstream of the proposed Delevan Intake and Pipeline, and downstream of Hood, in the Yolo Bypass and Sacramento-San Joaquin River Delta outflow (Tables 25B-37-1 and 25B-37-2, Tables 25B-40-1 and 25B-40-2, Tables 25B-45-1 and 25B-45-2, Tables 25B-46-1 and 25B-46-2, and Tables 25B-47-1 and 25B-47-2 respectively). Each set of tables has an associated set of exceedance probability charts that follow.

Table 25B-1 identifies the occurrence of dead pool conditions in major CVP and SWP reservoirs under the No Project/No Action Alternative under current climate and sea level conditions. The frequency of dead pool conditions would increase under ELT and LLT climate and sea level scenarios. Exceedance probability charts can be used to observe the changes in dead pool conditions. In the CALSIM II model, dead pool conditions are assumed at 240 TAF for Trinity Lake, 550 TAF for Shasta Lake, and 90 TAF for Folsom Lake. These are extreme operational limits and are well below the range of reasonable reservoir operations. A more reasonable "red line" condition for evaluating operational limits would be two to three times greater than these values.

Exceedance probability charts showing Trinity Lake, Shasta Lake, and Folsom Lake are shown in Figures 25B-32-1 through 25B-32-4, Figures 25B-33-1 through 25B-33-4, and Figures 25B-43-1 through 25B-43-4 respectively (in Section 25B.8).

Under all climate and sea level conditions including the current, there would be improvements in operations of these reservoirs under NODOS Project alternatives, when compared to the No Project/No Action Alternative under the same climate and sea level conditions. It is assumed that reductions in these extreme operations (operating at dead pool conditions) would improve operations in compliance with minimum flow criteria, Delta salinities meeting standards, diversions meeting allocated volumes and water rights priorities, and operating agreements being maintained.

25B.6 References

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25B.7 Compilation of Selected Model Input and No Project/No Action Alternative Results

Selected model inputs and results for the No Project/No Action Alternative are compiled in this section. This compilation is helpful to understand the magnitude of potential changes in the No Project/No Action Alternative due to climate change and sea level rise.

Selected CALSIM II model inputs are presented for various inflows at Shasta Lake, collections of tributaries along the Sacramento River between Keswick Dam and the proposed intakes for Sites Reservoir, and inflows at other existing CVP and SWP reservoirs. The tables and figures of the selected inputs are cataloged in Table 25B-5.

Selected CALSIM II model results are presented for the Sacramento-San Joaquin River Delta X2 position and Delta outflow operations for CALSIM II simulation assuming inflows based on the Current climate scenario (Q0) but with a revised ANN based on an assumed sea level rise of 45 cm (18 inches), as was assumed for all LLT scenarios. The tables and figures of the selected inputs are cataloged in Table 25B-6.

For the No Project/No Action Alternative, for all climate and sea level scenarios, selected CALSIM II model results are presented for various Sacramento River, San Joaquin River, and Sacramento-San Joaquin River Delta locations, as well as existing CVP and SWP reservoirs storage and CVP and SWP Delta export operations. The tables and figures of the selected inputs are cataloged in Table 25B-7.

Refer to Section 25B.5 for more description of these tables and figures, the results, and limitations of the NODOS Project climate change and sea level rise sensitivity analysis.

Table 25B-5
Catalog of Selected Model Inputs Showing the Impact of ELT (Q5), LLT (Q5), and LLT Q2 and LLT Q4 Climate Change and Sea Level Rise Scenarios on Pattern and Timing of Inflow Volumes

Location	Parameter			
	Type (units)	Report Format	Tables	Figures
Shasta Lake Inflows	Flow Volume (TAF)	Monthly and Annual	Table 25B-8	Figure 25B-8
Sacramento River Inflows, Keswick Dam to Hamilton City	Flow Volume (TAF)	Monthly and Annual	Table 25B-9	Figure 25B-9
Sacramento River Inflows, Keswick Dam to Delevan Intake	Flow Volume (TAF)	Monthly and Annual	Table 25B-10	Figure 25B-10
Trinity Lake Inflows	Flow Volume (TAF)	Monthly and Annual	Table 25B-11	Figure 25B-11
Folsom Lake Inflows	Flow Volume (TAF)	Monthly and Annual	Table 25B-12	Figure 25B-12
Lake Oroville Inflows	Flow Volume (TAF)	Monthly and Annual	Table 25B-13	Figure 25B-13

Table 25B-6
Catalog of Selected No Project/No Action Alternative Model Results Showing the Impact of LLT Q0 and LLT (Q5) Climate Change and Sea Level Rise Scenarios on Pattern and Timing of X2 Position and Delta Outflow Operations

Location	Parameter			
	Type (units)	**Report Format**	**Tables**	**Figures**
X2 (SQ-01)	Position (KM)	Monthly	Table 25B-14	Figure 25B-14
Sacramento/San Joaquin River Delta (SW-33)	Outflow (CFS)	Monthly	Table 25B-15	Figure 25B-15

Table 25B-7
Catalog of Selected No Project/No Action Alternative Model Results Showing the Impact of ELT (Q5), LLT (Q5), and LLT Q2 and LLT Q4 Climate Change and Sea Level Rise Scenarios on Pattern and Timing of Flow and Storage Operations

Location	Parameter			
	Type (units)	**Report Format**	**Tables**	**Figures**
Sacramento River below Keswick Reservoir (SW-10)	Flow (CFS)	Monthly	Table 25B-16	Figure 25B-16
Sacramento River below Hood (SW-30)	Flow (CFS)	Monthly	Table 25B-17	Figure 25B-17
San Joaquin River at Vernalis	Flow (CFS)	Monthly	Table 25B-18	Figure 25B-18
Sacramento/San Joaquin River Delta (SW-33)	Outflow (CFS)	Monthly	Table 25B-19	Figure 25B-19
X2 (SQ-01)	Position (KM)	Monthly	Table 25B-20	Figure 25B-20
Trinity Lake (SW-01)	Storage (TAF)	Monthly	Table 25B-21	Figure 25B-21
Shasta Lake (SW-07)	Storage (TAF)	Monthly	Table 25B-22	Figure 25B-22
Lake Oroville (SW-18)	Storage (TAF)	Monthly	Table 25B-23	Figure 25B-23
Folsom Lake (SW-24)	Storage (TAF)	Monthly	Table 25B-24	Figure 25B-24
Total Trinity Lake (SW-01), Shasta Lake (SW 07), Lake Oroville (SW-18), Folsom Lake (SW-24)	Storage (TAF)	Monthly	Table 25B-25	Figure 25B-25
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) (SW-36)	Diversion (CFS and TAF/Yr)	Monthly and Annual	Table 25B-26	Figure 25B-26

25B.8 Compilation of No Project/No Action Alternative and Alternative A, B and C Results

Selected model inputs and results for all alternatives are compiled in this section. This compilation is helpful to understand the magnitude of potential changes in the NODOS Project alternatives due to climate change and sea level rise.

For all alternatives, for all climate and sea level scenarios, selected CALSIM II model results are presented for various Sacramento River, Feather River, and American River locations, proposed Sites Reservoir and intake operations, and Sacramento-San Joaquin River Delta locations, as well as existing CVP and SWP reservoirs storage and CVP and SWP Delta export operations. The tables and figures of the selected inputs are cataloged in Table 25B-27.

Refer to Section 25B.5 for more description of these tables and figures, the results, and the limitations of the NODOS Project climate change and sea level rise sensitivity analysis.

CALSIM II results for each parameter are presented in one of three formats: (1) as selected monthly values, (2) as seasonal averaged values (averaged for October to December, January to March, April to July, and June to September), or (3) as annual total values (converted to volume units and summed October to September). Each format includes multiple sheets of both tables and figures.

Depending on the formats used for a parameter, the number of presentations will change. The tables and figures for each parameter, and seasonal, annual, and selected monthly statistic are grouped to present the Current, ELT (Q5), and LLT (Q5) climate and sea level scenario results first, and the LLT Q2 and LLT Q4 climate and sea level scenario results second.

Table 25B-27
Catalog of Selected No Project/No Action Alternative and Alternative A, B, and C Model Results Showing the Impact of ELT (Q5), LLT (Q5), and LLT Q2 and LLT Q4 Climate Change and Sea Level Rise Scenarios on Pattern and Timing of Flow and Storage Operations

Location	Parameter			
	Type (units)	Report Format	Tables	Figures
Funks Reservoir to Sites Reservoir (OP-04)	Diversion (TAF)	Annual Total	Table 25B-28	Figure 25B-28
	Diversion (CFS)	Seasonal Average	Table 25B-29	Figure 25B-29
Sites Reservoir (OP-09)	Storage (TAF)	Selected Monthly	Table 25B-30	Figure 25B-30
Total Trinity Lake (SW-01), Shasta Lake (SW-07), Lake Oroville (SW-18), Folsom Lake (SW-24) and Sites Reservoir (OP-09)	Storage (TAF)	Selected Monthly	Table 25B-31	Figure 25B-31
Trinity Lake (SW-01)	Storage (TAF)	Selected Monthly	Table 25B-32	Figure 25B-32
Shasta Lake (SW-07)	Storage (TAF)	Selected Monthly	Table 25B-33	Figure 25B-33
Sacramento River below Keswick Reservoir (SW-10)	Flow (CFS)	Seasonal Average	Table 25B-34	Figure 25B-34
Tehama Colusa Canal Intake at Red Bluff (OP-01a)	Diversion (CFS)	Seasonal Average	Table 25B-35	Figure 25B-35
Glenn Colusa Canal Intake at Hamilton City (OP-02a)	Diversion (CFS)	Seasonal Average	Table 25B-36	Figure 25B-36
Sacramento River below Hamilton City (SW-13)	Flow (CFS)	Seasonal Average	Table 25B-37	Figure 25B-37
Delevan Intake and Pipeline (OP-03a)	Diversion (CFS)	Seasonal Average	Table 25B-38	Figure 25B-38
Funks Reservoir to Delevan Pipeline (OP-06)	Flow (CFS)	Seasonal Average	Table 25B-39	Figure 25B-39
Sacramento River below Delevan Intake and Pipeline (SW-14)	Flow (CFS)	Seasonal Average	Table 25B-40	Figure 25B-40
Lake Oroville (SW-18)	Storage (TAF)	Selected Monthly	Table 25B-41	Figure 25B-41
Feather River below Thermalito (SW-22)	Flow (CFS)	Seasonal Average	Table 25B-42	Figure 25B-42
Folsom Lake (SW-24)	Storage (TAF)	Selected Monthly	Table 25B-43	Figure 25B-43
American River at Watt Avenue (SW-28)	Flow (CFS)	Seasonal Average	Table 25B-44	Figure 25B-44
Sacramento River below Hood (SW-30)	Flow (CFS)	Seasonal Average	Table 25B-45	Figure 25B-45
Yolo Bypass (SW-31)	Flow (CFS)	Seasonal Average	Table 25B-46	Figure 25B-46
Sacramento/San Joaquin River Delta (SW-33)	Outflow (CFS)	Seasonal Average	Table 25B-47	Figure 25B-47
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) (SW-36)	Diversion (TAF)	Annual Total	Table 25B-48	Figure 25B-48
Banks Pumping Plant (SWP and CVP) (SW-38)	Diversion (TAF)	Annual Total	Table 25B-49	Figure 25B-49
X2 (SQ-01)	Position (KM)	Seasonal Average	Table 25B-50	Figure 25B-50
Old River at Rock Slough (SQ-27 alt)	EC (UMHOS/CM)	Seasonal Average	Table 25B-51	Figure 25B-51

Compilation of Selected Model Input and No Action Alternative Results

Table 25B-8. Shasta Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (ELT)	Change from No Action Alternative (TAF): No Action Alternative (LLT)
Oct	246	2 (1%)	-1 (0%)
Nov	340	16 (5%)	11 (3%)
Dec	545	68 (13%)	98 (18%)
Jan	721	62 (9%)	139 (19%)
Feb	803	69 (9%)	126 (16%)
Mar	838	0 (0%)	19 (2%)
Apr	691	-34 (-5%)	-57 (-8%)
May	514	-49 (-10%)	-87 (-17%)
Jun	326	-39 (-12%)	-67 (-21%)
Jul	240	-27 (-11%)	-45 (-19%)
Aug	215	-14 (-6%)	-24 (-11%)
Sep	211	-9 (-4%)	-13 (-6%)
Annual (TAF/Yr)	5,690	45 (1%)	98 (2%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q2)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q4)
Oct	246	-41 (-17%)	39 (16%)
Nov	340	-22 (-7%)	26 (8%)
Dec	545	33 (6%)	149 (27%)
Jan	721	-7 (-1%)	255 (35%)
Feb	803	-65 (-8%)	317 (39%)
Mar	838	-142 (-17%)	172 (20%)
Apr	691	-135 (-20%)	72 (10%)
May	514	-151 (-29%)	14 (3%)
Jun	326	-112 (-34%)	-7 (-2%)
Jul	240	-71 (-29%)	-11 (-5%)
Aug	215	-38 (-18%)	-3 (-1%)
Sep	211	-27 (-13%)	-2 (-1%)
Annual (TAF/Yr)	5,690	-779 (-14%)	1021 (18%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (ELT)	Change from No Action Alternative (TAF): No Action Alternative (LLT)
Oct	186	-7 (-4%)	-6 (-3%)
Nov	199	-3 (-1%)	-6 (-3%)
Dec	227	3 (1%)	10 (4%)
Jan	269	7 (3%)	23 (8%)
Feb	316	3 (1%)	25 (8%)
Mar	421	-19 (-4%)	-20 (-5%)
Apr	358	-24 (-7%)	-35 (-10%)
May	289	-26 (-9%)	-40 (-14%)
Jun	211	-24 (-11%)	-35 (-16%)
Jul	185	-17 (-9%)	-27 (-15%)
Aug	172	-9 (-5%)	-12 (-7%)
Sep	170	-6 (-4%)	-8 (-5%)
Annual (TAF/Yr)	3,470	-96 (-3%)	-65 (-2%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q2)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q4)
Oct	186	-27 (-15%)	5 (3%)
Nov	199	-29 (-15%)	4 (2%)
Dec	227	-21 (-9%)	21 (9%)
Jan	269	-27 (-10%)	57 (21%)
Feb	316	-46 (-15%)	90 (28%)
Mar	421	-100 (-24%)	51 (12%)
Apr	358	-97 (-27%)	29 (8%)
May	289	-80 (-28%)	14 (5%)
Jun	211	-64 (-30%)	0 (0%)
Jul	185	-48 (-26%)	-3 (-1%)
Aug	172	-24 (-14%)	-2 (-1%)
Sep	170	-19 (-11%)	-1 (-1%)
Annual (TAF/Yr)	3,470	-677 (-19%)	471 (14%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-8. Shasta Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	324	26 (8%)	15 (5%)
Nov	586	50 (9%)	44 (8%)
Dec	1,114	209 (19%)	261 (23%)
Jan	1,465	147 (10%)	321 (22%)
Feb	1,485	220 (15%)	347 (23%)
Mar	1,413	33 (2%)	75 (5%)
Apr	1,148	-36 (-3%)	-59 (-5%)
May	825	-78 (-10%)	-146 (-18%)
Jun	489	-57 (-12%)	-110 (-23%)
Jul	307	-44 (-14%)	-72 (-24%)
Aug	260	-20 (-8%)	-35 (-14%)
Sep	254	-12 (-5%)	-18 (-7%)
Annual (TAF/Yr)	8,439	232 (3%)	367 (4%)

LLT Sensitivity - Upper Quartile Average[1,3]

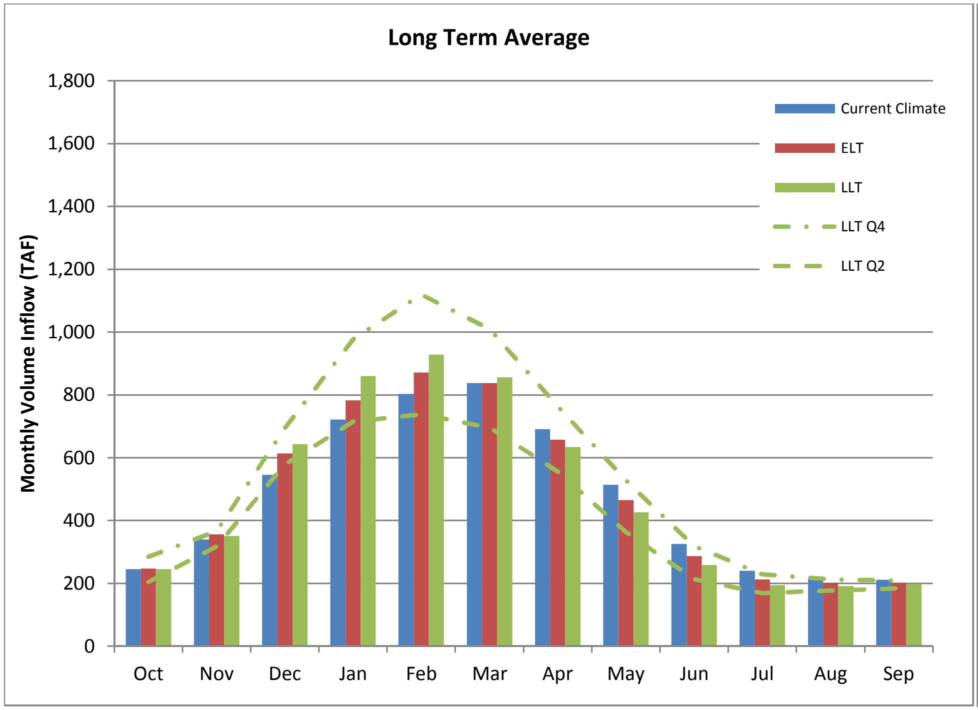
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	324	-67 (-21%)	124 (38%)
Nov	586	0 (0%)	63 (11%)
Dec	1,114	144 (13%)	365 (33%)
Jan	1,465	41 (3%)	542 (37%)
Feb	1,485	-26 (-2%)	720 (49%)
Mar	1,413	-146 (-10%)	330 (23%)
Apr	1,148	-127 (-11%)	152 (13%)
May	825	-229 (-28%)	15 (2%)
Jun	489	-184 (-38%)	-10 (-2%)
Jul	307	-105 (-34%)	-24 (-8%)
Aug	260	-53 (-20%)	-1 (0%)
Sep	254	-36 (-14%)	-2 (-1%)
Annual (TAF/Yr)	8,439	-763 (-9%)	1645 (19%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



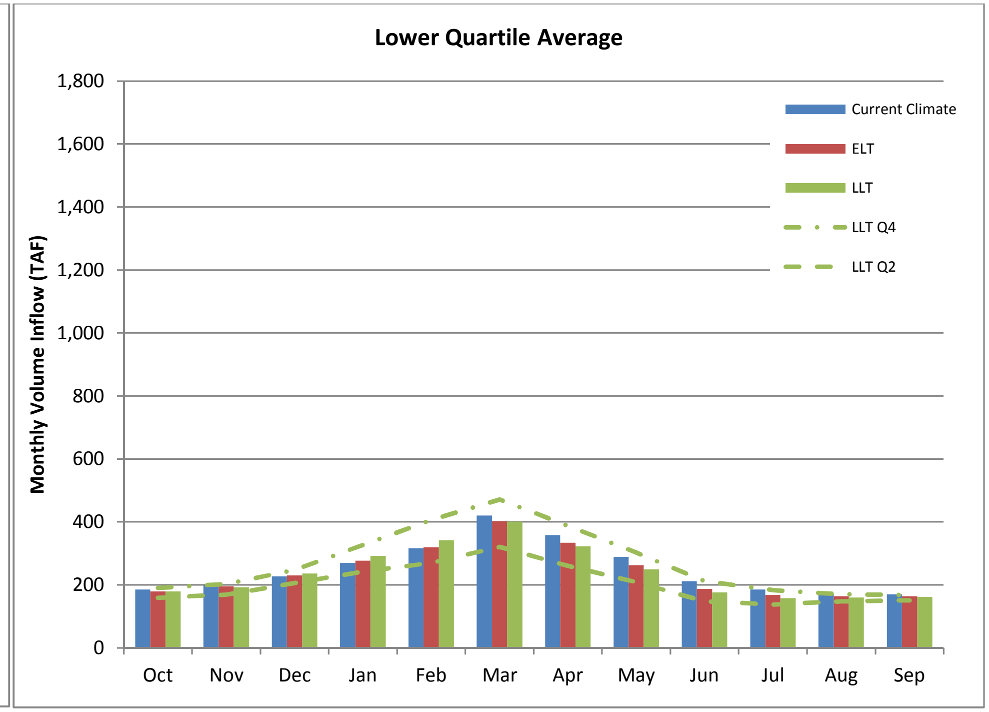


Figure 25B-8.
Shasta Lake,
Monthly Volume Inflow (TAF)

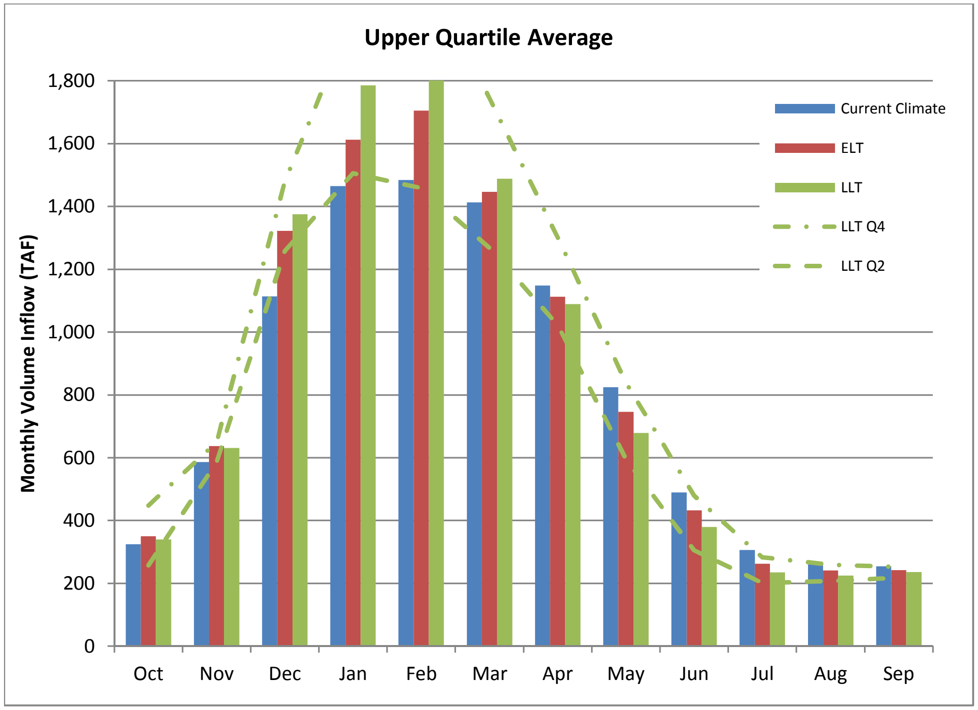


Figure 25B-8.
Shasta Lake,
Monthly Volume Inflow (TAF)

Table 25B-9. Sacramento River Keswick Dam to Hamilton City, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	65	0 (1%)	0 (0%)
Nov	157	2 (1%)	-1 (0%)
Dec	370	14 (4%)	9 (2%)
Jan	544	13 (2%)	16 (3%)
Feb	557	17 (3%)	23 (4%)
Mar	492	6 (1%)	7 (1%)
Apr	330	1 (0%)	-3 (-1%)
May	214	0 (0%)	-4 (-2%)
Jun	113	-1 (-1%)	-5 (-4%)
Jul	60	-1 (-1%)	-2 (-3%)
Aug	46	0 (0%)	0 (-1%)
Sep	46	0 (0%)	0 (-1%)
Annual (TAF/Yr)	2,993	51 (2%)	40 (1%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	65	-8 (-13%)	9 (14%)
Nov	157	-15 (-10%)	17 (11%)
Dec	370	-26 (-7%)	52 (14%)
Jan	544	-50 (-9%)	84 (15%)
Feb	557	-60 (-11%)	106 (19%)
Mar	492	-59 (-12%)	76 (15%)
Apr	330	-45 (-14%)	45 (14%)
May	214	-34 (-16%)	30 (14%)
Jun	113	-21 (-18%)	14 (13%)
Jul	60	-10 (-16%)	7 (12%)
Aug	46	-6 (-12%)	6 (12%)
Sep	46	-5 (-12%)	5 (12%)
Annual (TAF/Yr)	2,993	-338 (-11%)	450 (15%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	36	0 (-1%)	-1 (-2%)
Nov	47	-1 (-1%)	-1 (-2%)
Dec	75	-1 (-1%)	-1 (-1%)
Jan	128	-1 (-1%)	-2 (-2%)
Feb	141	0 (0%)	-1 (-1%)
Mar	164	-1 (-1%)	-3 (-2%)
Apr	123	-1 (-1%)	-2 (-2%)
May	92	-2 (-2%)	-4 (-4%)
Jun	51	-2 (-4%)	-3 (-6%)
Jul	33	-1 (-3%)	-1 (-4%)
Aug	28	-1 (-2%)	-1 (-3%)
Sep	28	0 (-1%)	-1 (-2%)
Annual (TAF/Yr)	1,341	-21 (-2%)	-27 (-2%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	36	-5 (-15%)	4 (12%)
Nov	47	-7 (-14%)	5 (10%)
Dec	75	-9 (-12%)	6 (8%)
Jan	128	-16 (-12%)	13 (10%)
Feb	141	-17 (-12%)	16 (11%)
Mar	164	-22 (-13%)	15 (9%)
Apr	123	-19 (-15%)	12 (10%)
May	92	-15 (-16%)	8 (9%)
Jun	51	-10 (-19%)	4 (8%)
Jul	33	-6 (-17%)	3 (8%)
Aug	28	-4 (-16%)	3 (10%)
Sep	28	-4 (-16%)	3 (10%)
Annual (TAF/Yr)	1,341	-167 (-12%)	109 (8%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-9. Sacramento River Keswick Dam to Hamilton City, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	115	2 (2%)	1 (1%)
Nov	355	5 (2%)	-1 (0%)
Dec	869	51 (6%)	34 (4%)
Jan	1,198	44 (4%)	56 (5%)
Feb	1,162	56 (5%)	82 (7%)
Mar	981	20 (2%)	28 (3%)
Apr	655	6 (1%)	0 (0%)
May	402	5 (1%)	-4 (-1%)
Jun	213	1 (1%)	-5 (-2%)
Jul	99	0 (0%)	-3 (-3%)
Aug	69	0 (1%)	0 (0%)
Sep	67	0 (1%)	0 (0%)
Annual (TAF/Yr)	5,183	178 (3%)	179 (3%)

LLT Sensitivity - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	115	-15 (-13%)	18 (16%)
Nov	355	-29 (-8%)	37 (10%)
Dec	869	-41 (-5%)	133 (15%)
Jan	1,198	-89 (-7%)	204 (17%)
Feb	1,162	-122 (-11%)	266 (23%)
Mar	981	-116 (-12%)	177 (18%)
Apr	655	-80 (-12%)	95 (14%)
May	402	-61 (-15%)	65 (16%)
Jun	213	-37 (-17%)	32 (15%)
Jul	99	-16 (-16%)	13 (13%)
Aug	69	-7 (-11%)	9 (12%)
Sep	67	-6 (-10%)	7 (11%)
Annual (TAF/Yr)	5,183	-510 (-10%)	900 (17%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%

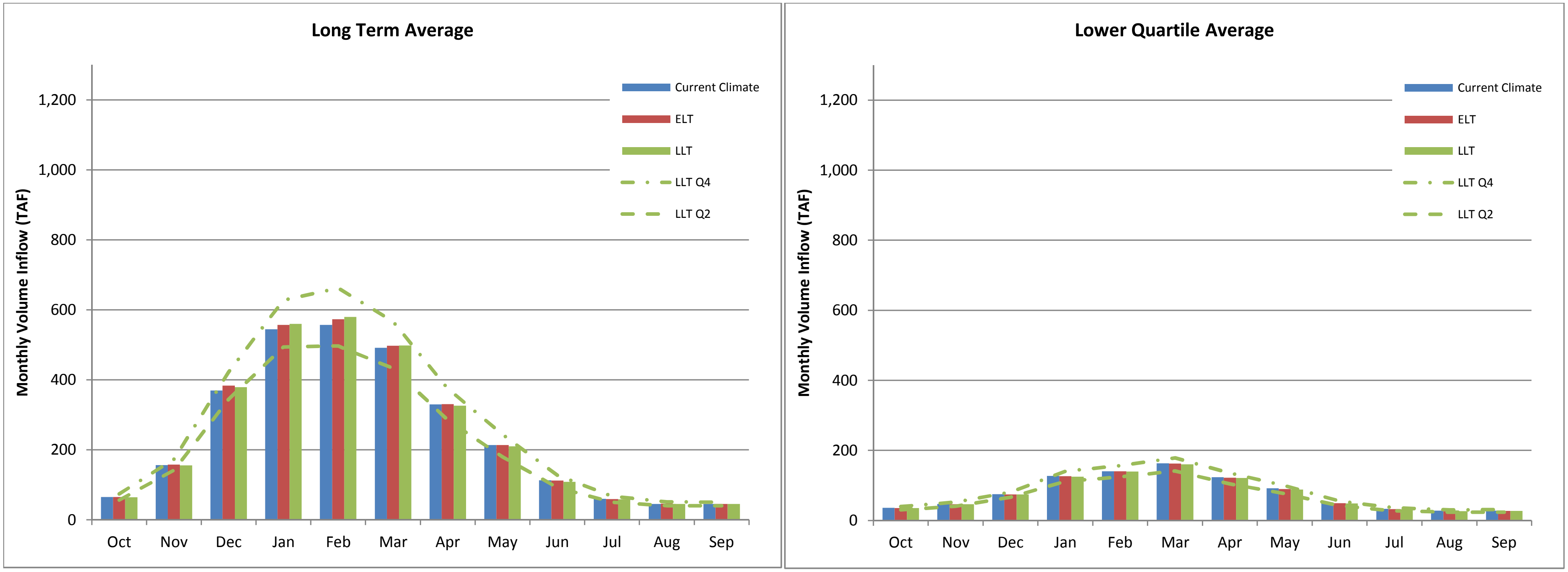


Figure 25B-9.
Sacramento River Keswick Dam to Hamilton City,
Monthly Volume Inflow (TAF)

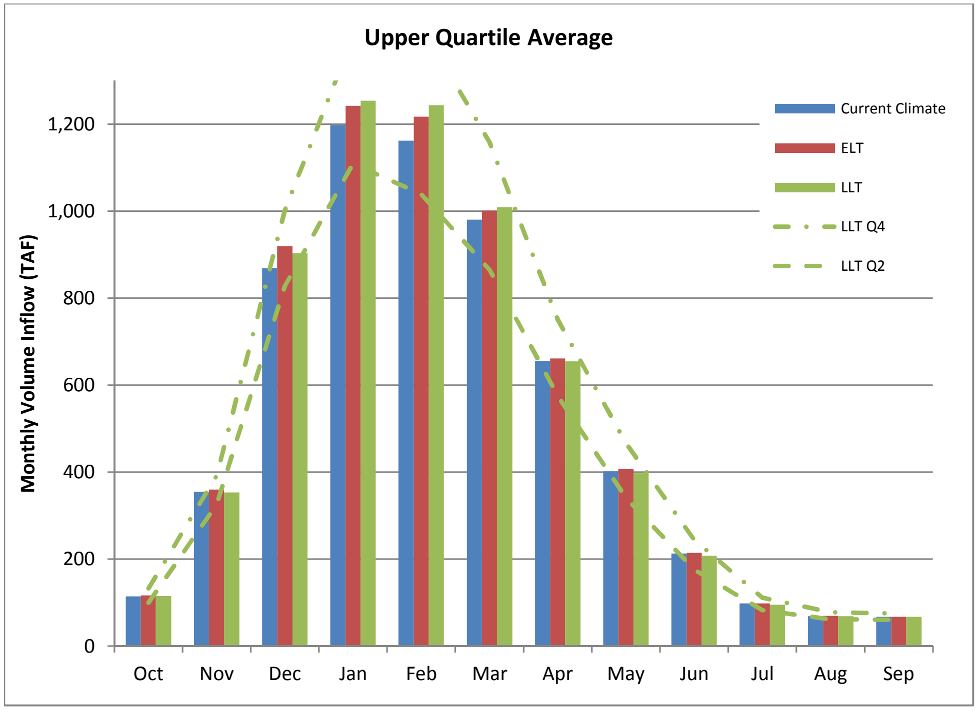


Figure 25B-9.
Sacramento River Keswick Dam to Hamilton City,
Monthly Volume Inflow (TAF)

Table 25B-10. Sacramento River Keswick Dam to Delevan Intake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	71	0 (1%)	0 (0%)
Nov	183	2 (1%)	-1 (0%)
Dec	499	15 (3%)	10 (2%)
Jan	774	15 (2%)	18 (2%)
Feb	855	18 (2%)	25 (3%)
Mar	702	7 (1%)	8 (1%)
Apr	443	1 (0%)	-3 (-1%)
May	257	1 (0%)	-4 (-1%)
Jun	128	-1 (-1%)	-4 (-3%)
Jul	64	0 (-1%)	-2 (-3%)
Aug	49	0 (0%)	0 (-1%)
Sep	49	0 (0%)	0 (0%)
Annual (TAF/Yr)	4,073	59 (1%)	46 (1%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	71	-9 (-13%)	10 (13%)
Nov	183	-17 (-9%)	19 (10%)
Dec	499	-31 (-6%)	60 (12%)
Jan	774	-59 (-8%)	97 (13%)
Feb	855	-72 (-8%)	121 (14%)
Mar	702	-68 (-10%)	87 (12%)
Apr	443	-51 (-11%)	53 (12%)
May	257	-37 (-14%)	34 (13%)
Jun	128	-22 (-17%)	16 (12%)
Jul	64	-10 (-16%)	8 (12%)
Aug	49	-6 (-12%)	6 (12%)
Sep	49	-6 (-11%)	6 (11%)
Annual (TAF/Yr)	4,073	-386 (-9%)	515 (13%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	37	0 (-1%)	-1 (-2%)
Nov	50	-1 (-1%)	-1 (-2%)
Dec	83	-1 (-1%)	-1 (-1%)
Jan	147	-1 (-1%)	-2 (-1%)
Feb	179	-1 (-1%)	-2 (-1%)
Mar	200	0 (0%)	-3 (-2%)
Apr	142	-1 (-1%)	-2 (-2%)
May	100	-2 (-2%)	-4 (-4%)
Jun	54	-2 (-4%)	-3 (-6%)
Jul	35	-1 (-3%)	-1 (-4%)
Aug	29	-1 (-2%)	-1 (-3%)
Sep	29	0 (-1%)	-1 (-2%)
Annual (TAF/Yr)	1,629	-21 (-1%)	-29 (-2%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	37	-6 (-15%)	4 (12%)
Nov	50	-7 (-14%)	5 (10%)
Dec	83	-10 (-12%)	6 (7%)
Jan	147	-17 (-12%)	14 (10%)
Feb	179	-19 (-11%)	17 (9%)
Mar	200	-25 (-12%)	17 (9%)
Apr	142	-20 (-14%)	14 (10%)
May	100	-15 (-16%)	9 (9%)
Jun	54	-10 (-18%)	4 (8%)
Jul	35	-6 (-17%)	3 (8%)
Aug	29	-5 (-16%)	3 (10%)
Sep	29	-5 (-16%)	3 (10%)
Annual (TAF/Yr)	1,629	-186 (-11%)	125 (8%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-10. Sacramento River Keswick Dam to Delevan Intake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	132	2 (2%)	1 (1%)
Nov	431	6 (1%)	-1 (0%)
Dec	1,211	56 (5%)	38 (3%)
Jan	1,813	53 (3%)	62 (3%)
Feb	1,874	61 (3%)	89 (5%)
Mar	1,490	26 (2%)	33 (2%)
Apr	956	8 (1%)	1 (0%)
May	504	7 (1%)	-3 (-1%)
Jun	253	2 (1%)	-4 (-2%)
Jul	106	0 (0%)	-3 (-3%)
Aug	75	1 (1%)	0 (0%)
Sep	73	0 (1%)	0 (0%)
Annual (TAF/Yr)	7,470	205 (3%)	202 (3%)

LLT Sensitivity - Upper Quartile Average[1,3]

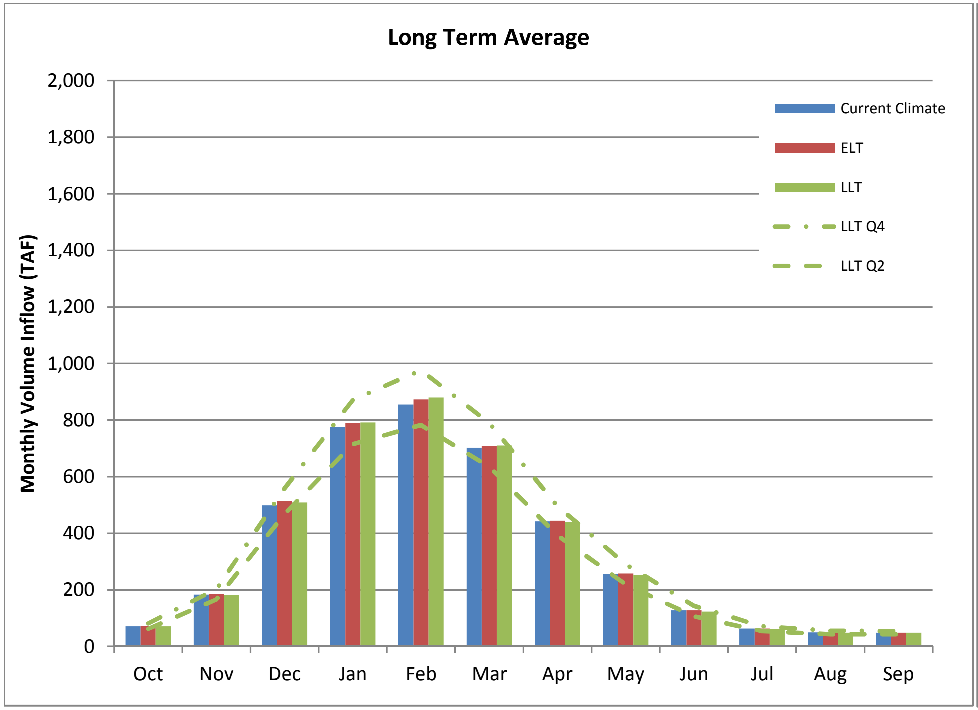
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	132	-16 (-12%)	20 (15%)
Nov	431	-34 (-8%)	43 (10%)
Dec	1,211	-52 (-4%)	154 (13%)
Jan	1,813	-106 (-6%)	238 (13%)
Feb	1,874	-155 (-8%)	308 (16%)
Mar	1,490	-135 (-9%)	209 (14%)
Apr	956	-94 (-10%)	114 (12%)
May	504	-67 (-13%)	74 (15%)
Jun	253	-39 (-16%)	35 (14%)
Jul	106	-17 (-16%)	14 (14%)
Aug	75	-8 (-10%)	9 (11%)
Sep	73	-7 (-9%)	8 (10%)
Annual (TAF/Yr)	7,470	-602 (-8%)	1052 (14%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



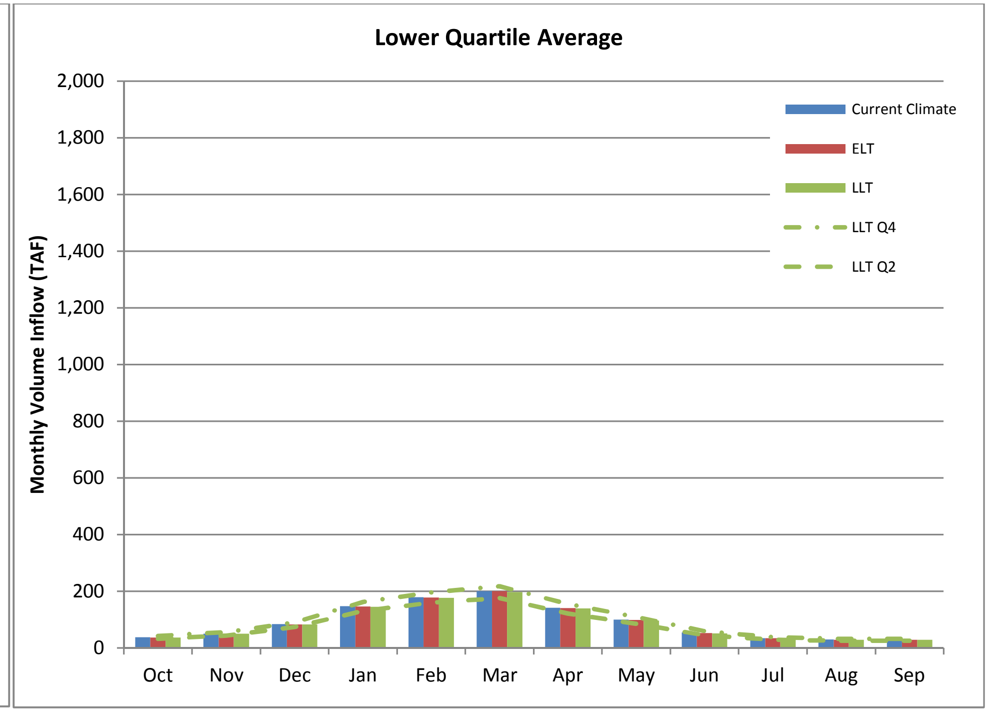


Figure 25B-10.
Sacramento River Keswick Dam to Delevan Intake,
Monthly Volume Inflow (TAF)

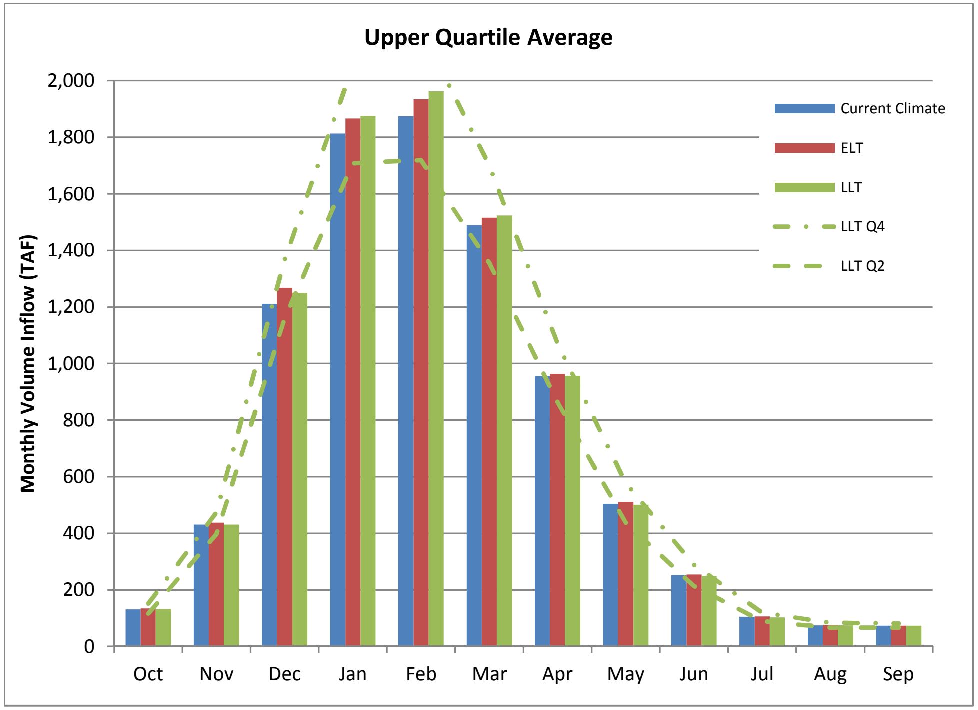


Figure 25B-10.
Sacramento River Keswick Dam to Delevan Intake,
Monthly Volume Inflow (TAF)

Table 25B-11. Trinity Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	19	2 (12%)	1 (4%)
Nov	52	5 (9%)	4 (8%)
Dec	100	16 (16%)	28 (28%)
Jan	130	20 (15%)	50 (39%)
Feb	151	20 (13%)	49 (32%)
Mar	178	6 (4%)	23 (13%)
Apr	210	-8 (-4%)	-9 (-5%)
May	244	-20 (-8%)	-47 (-19%)
Jun	129	-24 (-19%)	-50 (-38%)
Jul	40	-12 (-31%)	-21 (-52%)
Aug	14	-2 (-17%)	-4 (-27%)
Sep	10	-1 (-7%)	-1 (-11%)
Annual (TAF/Yr)	1,277	2 (0%)	23 (2%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	19	-3 (-19%)	5 (24%)
Nov	52	-2 (-3%)	8 (15%)
Dec	100	12 (12%)	47 (47%)
Jan	130	12 (9%)	67 (51%)
Feb	151	2 (1%)	78 (52%)
Mar	178	-19 (-10%)	50 (28%)
Apr	210	-41 (-20%)	29 (14%)
May	244	-93 (-38%)	10 (4%)
Jun	129	-76 (-59%)	-9 (-7%)
Jul	40	-26 (-65%)	-11 (-27%)
Aug	14	-4 (-31%)	-2 (-16%)
Sep	10	-1 (-12%)	-1 (-7%)
Annual (TAF/Yr)	1,277	-241 (-19%)	271 (21%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	9	0 (-4%)	-1 (-7%)
Nov	10	0 (-2%)	0 (-4%)
Dec	18	0 (0%)	0 (2%)
Jan	27	1 (4%)	5 (18%)
Feb	45	1 (2%)	8 (17%)
Mar	79	-2 (-3%)	4 (5%)
Apr	112	-11 (-10%)	-16 (-14%)
May	113	-18 (-16%)	-32 (-28%)
Jun	43	-10 (-24%)	-17 (-40%)
Jul	14	-3 (-23%)	-5 (-38%)
Aug	7	-1 (-9%)	-1 (-18%)
Sep	6	0 (-4%)	0 (-7%)
Annual (TAF/Yr)	636	-36 (-6%)	-25 (-4%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	9	-1 (-10%)	0 (-5%)
Nov	10	-1 (-9%)	0 (-1%)
Dec	18	-2 (-10%)	1 (4%)
Jan	27	-2 (-6%)	7 (28%)
Feb	45	-10 (-21%)	19 (41%)
Mar	79	-22 (-28%)	21 (27%)
Apr	112	-44 (-39%)	13 (12%)
May	113	-56 (-49%)	-1 (-1%)
Jun	43	-25 (-57%)	-4 (-10%)
Jul	14	-7 (-49%)	-3 (-18%)
Aug	7	-2 (-22%)	-1 (-9%)
Sep	6	0 (-8%)	0 (-5%)
Annual (TAF/Yr)	636	-196 (-31%)	134 (21%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-11. Trinity Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	41	10 (24%)	5 (12%)
Nov	131	18 (13%)	15 (11%)
Dec	247	50 (20%)	79 (32%)
Jan	297	48 (16%)	121 (41%)
Feb	299	51 (17%)	112 (37%)
Mar	310	17 (6%)	55 (18%)
Apr	309	-4 (-1%)	3 (1%)
May	406	-18 (-4%)	-47 (-11%)
Jun	263	-40 (-15%)	-93 (-35%)
Jul	87	-30 (-34%)	-51 (-58%)
Aug	26	-6 (-22%)	-9 (-36%)
Sep	16	-2 (-9%)	-2 (-13%)
Annual (TAF/Yr)	2,036	48 (2%)	103 (5%)

LLT Sensitivity - Upper Quartile Average[1,3]

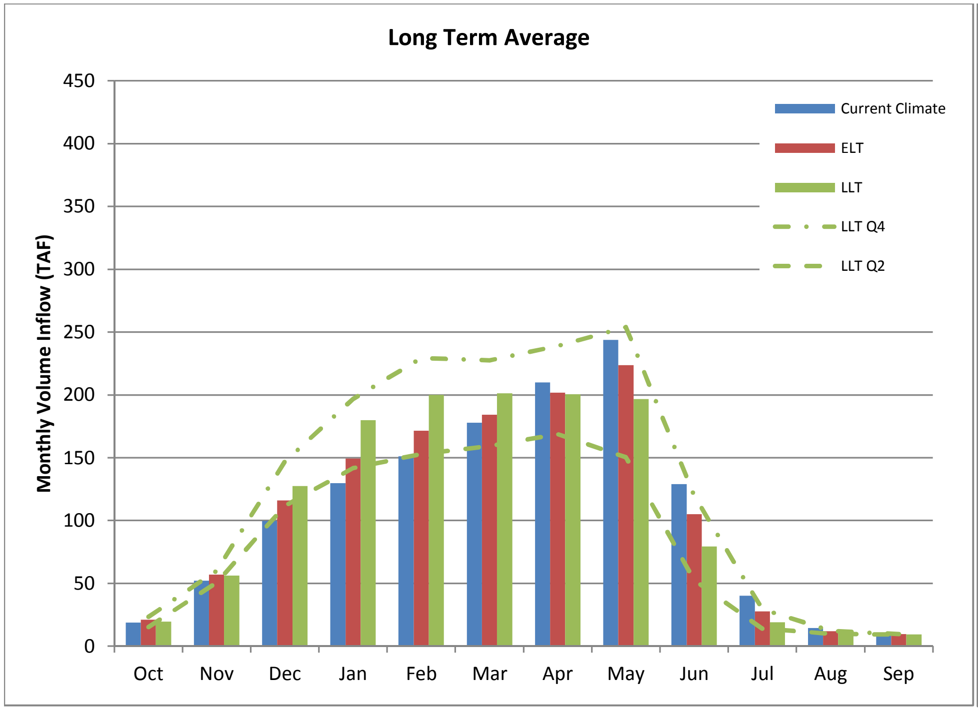
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	41	-10 (-25%)	19 (46%)
Nov	131	0 (0%)	25 (19%)
Dec	247	42 (17%)	133 (54%)
Jan	297	43 (15%)	153 (52%)
Feb	299	29 (10%)	160 (54%)
Mar	310	-9 (-3%)	94 (30%)
Apr	309	-20 (-7%)	48 (16%)
May	406	-113 (-28%)	29 (7%)
Jun	263	-151 (-57%)	-14 (-5%)
Jul	87	-64 (-73%)	-26 (-29%)
Aug	26	-11 (-40%)	-5 (-20%)
Sep	16	-3 (-16%)	-1 (-9%)
Annual (TAF/Yr)	2,036	-237 (-12%)	418 (21%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



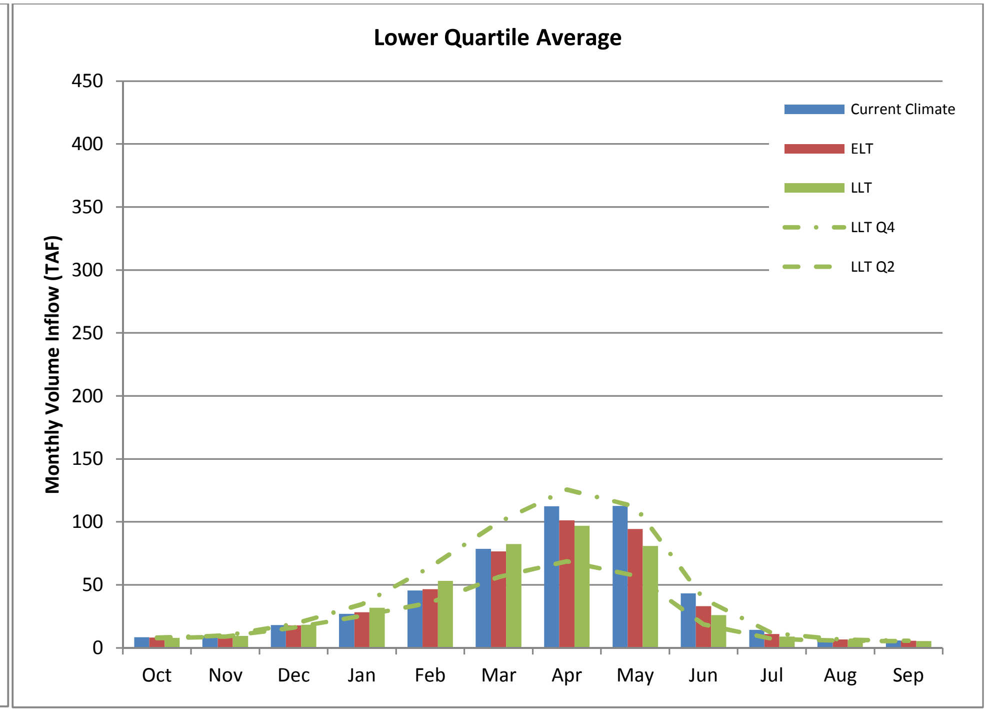


Figure 25B-11.
Trinity Lake,
Monthly Volume Inflow (TAF)

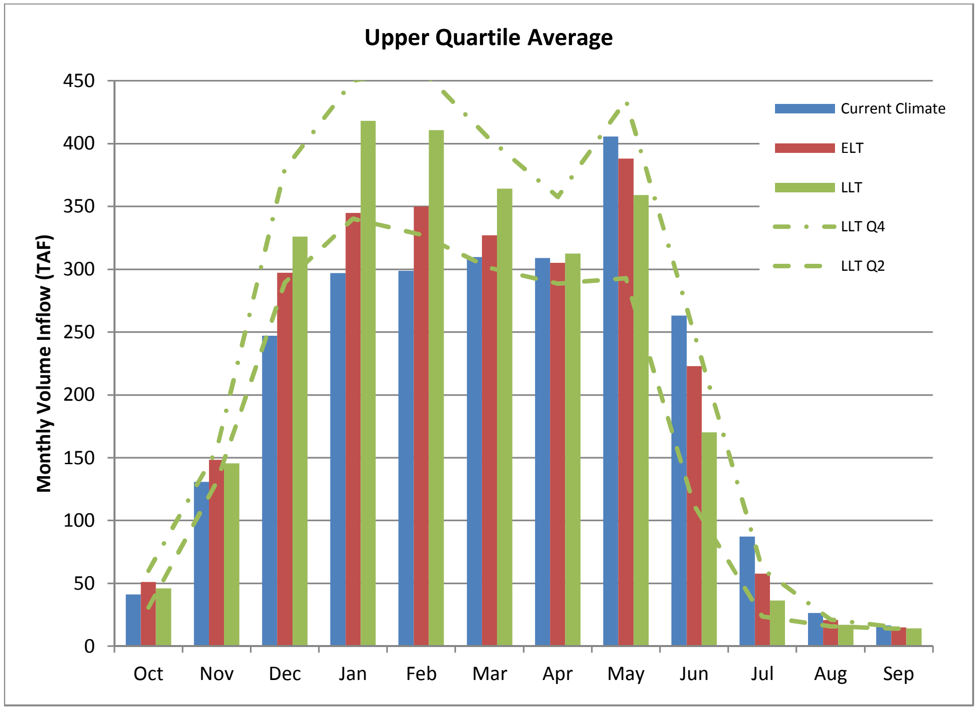


Figure 25B-11.
Trinity Lake,
Monthly Volume Inflow (TAF)

Table 25B-12. Folsom Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	57	-2 (-3%)	-3 (-4%)
Nov	80	3 (4%)	-7 (-9%)
Dec	114	16 (14%)	13 (12%)
Jan	145	15 (10%)	29 (20%)
Feb	147	19 (13%)	30 (20%)
Mar	159	5 (3%)	13 (8%)
Apr	158	-1 (-1%)	-1 (-1%)
May	173	-11 (-6%)	-29 (-17%)
Jun	107	-18 (-16%)	-34 (-32%)
Jul	70	-17 (-24%)	-28 (-41%)
Aug	66	-10 (-15%)	-15 (-23%)
Sep	67	-6 (-9%)	-8 (-12%)
Annual (TAF/Yr)	1,342	-6 (0%)	-41 (-3%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	57	-10 (-18%)	1 (2%)
Nov	80	-3 (-4%)	15 (19%)
Dec	114	14 (13%)	35 (31%)
Jan	145	3 (2%)	39 (27%)
Feb	147	-15 (-10%)	45 (31%)
Mar	159	-22 (-14%)	36 (23%)
Apr	158	-28 (-18%)	25 (16%)
May	173	-63 (-36%)	7 (4%)
Jun	107	-55 (-51%)	-11 (-10%)
Jul	70	-39 (-56%)	-14 (-20%)
Aug	66	-21 (-32%)	-8 (-12%)
Sep	67	-14 (-21%)	-4 (-5%)
Annual (TAF/Yr)	1,342	-253 (-19%)	168 (13%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	42	-3 (-7%)	-4 (-9%)
Nov	48	-2 (-4%)	-5 (-10%)
Dec	53	-1 (-2%)	-6 (-12%)
Jan	42	-1 (-2%)	-2 (-4%)
Feb	44	-1 (-3%)	-1 (-2%)
Mar	59	-2 (-3%)	-1 (-2%)
Apr	64	-6 (-9%)	-7 (-11%)
May	57	-9 (-16%)	-14 (-25%)
Jun	26	-6 (-23%)	-9 (-36%)
Jul	12	-2 (-17%)	-3 (-24%)
Aug	33	-3 (-9%)	-4 (-14%)
Sep	49	-4 (-9%)	-6 (-13%)
Annual (TAF/Yr)	617	-40 (-6%)	-62 (-10%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	42	-9 (-21%)	-1 (-2%)
Nov	48	-11 (-22%)	1 (3%)
Dec	53	-13 (-24%)	3 (5%)
Jan	42	-9 (-21%)	3 (8%)
Feb	44	-10 (-22%)	5 (12%)
Mar	59	-14 (-24%)	7 (11%)
Apr	64	-22 (-34%)	4 (6%)
May	57	-25 (-43%)	-3 (-4%)
Jun	26	-13 (-50%)	-4 (-15%)
Jul	12	-4 (-35%)	-1 (-11%)
Aug	33	-8 (-25%)	-1 (-3%)
Sep	49	-11 (-22%)	-2 (-3%)
Annual (TAF/Yr)	617	-175 (-28%)	38 (6%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-12. Folsom Lake, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	77	2 (2%)	3 (4%)
Nov	134	15 (11%)	-7 (-6%)
Dec	232	55 (24%)	51 (22%)
Jan	325	49 (15%)	93 (29%)
Feb	299	55 (18%)	86 (29%)
Mar	302	14 (5%)	33 (11%)
Apr	264	6 (2%)	11 (4%)
May	294	-6 (-2%)	-34 (-12%)
Jun	231	-32 (-14%)	-69 (-30%)
Jul	133	-33 (-24%)	-58 (-44%)
Aug	88	-17 (-19%)	-23 (-26%)
Sep	81	-8 (-10%)	-9 (-11%)
Annual (TAF/Yr)	2,224	48 (2%)	7 (0%)

LLT Sensitivity - Upper Quartile Average[1,3]

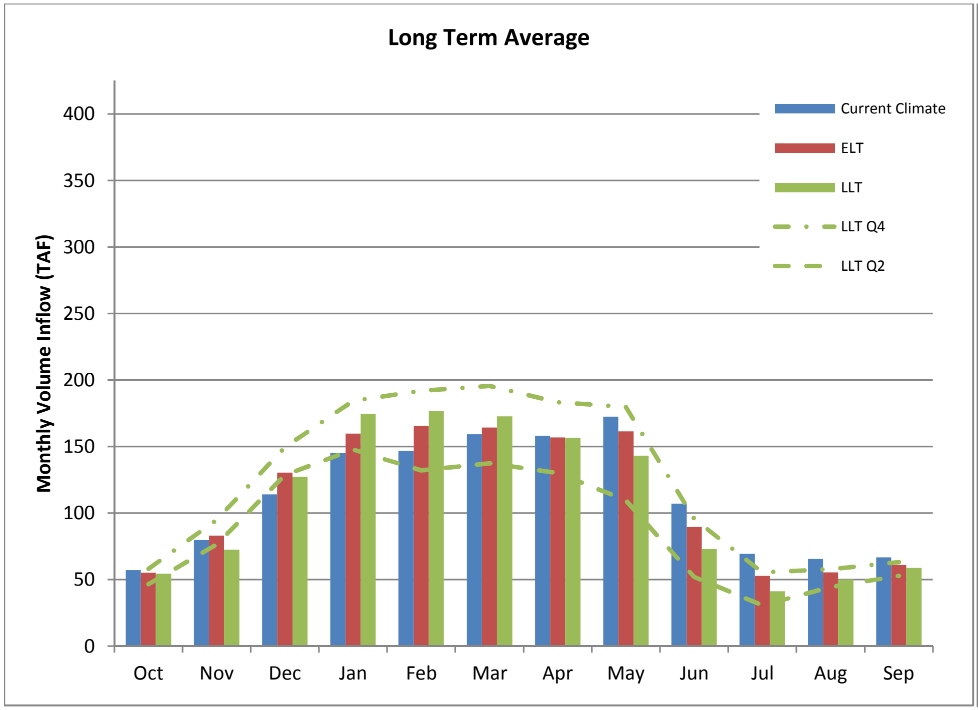
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	77	-13 (-16%)	7 (9%)
Nov	134	17 (12%)	37 (27%)
Dec	232	73 (32%)	92 (39%)
Jan	325	31 (9%)	109 (34%)
Feb	299	-26 (-9%)	116 (39%)
Mar	302	-39 (-13%)	90 (30%)
Apr	264	-25 (-9%)	55 (21%)
May	294	-90 (-31%)	26 (9%)
Jun	231	-119 (-51%)	-18 (-8%)
Jul	133	-81 (-61%)	-28 (-21%)
Aug	88	-29 (-33%)	-14 (-16%)
Sep	81	-18 (-22%)	-6 (-7%)
Annual (TAF/Yr)	2,224	-301 (-14%)	327 (15%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



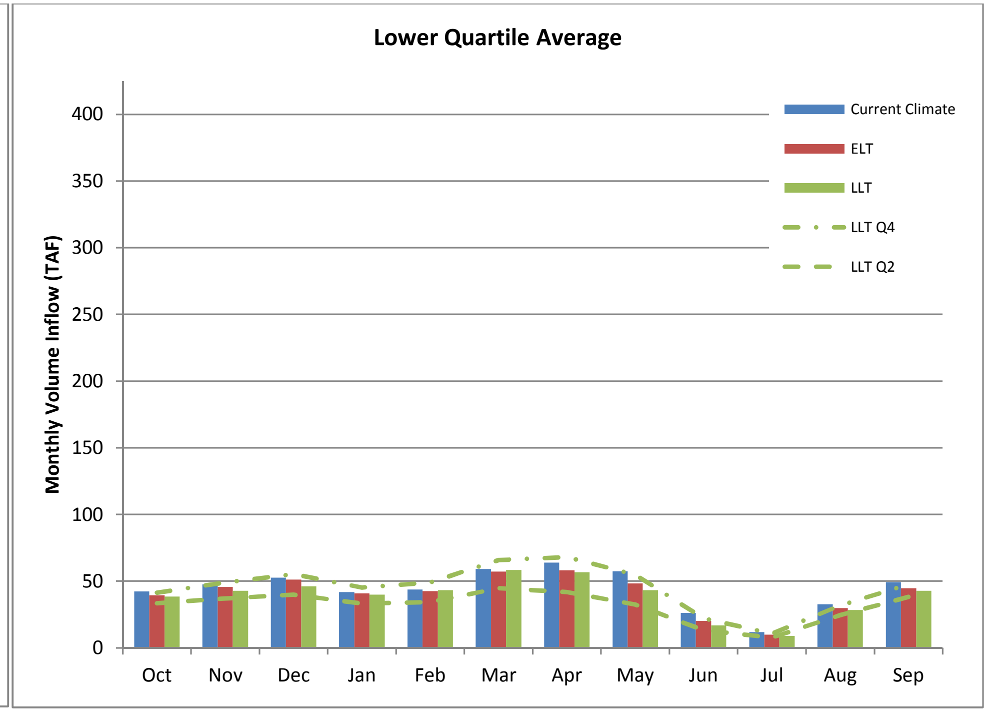


Figure 25B-12.
Folsom Lake,
Monthly Volume Inflow (TAF)

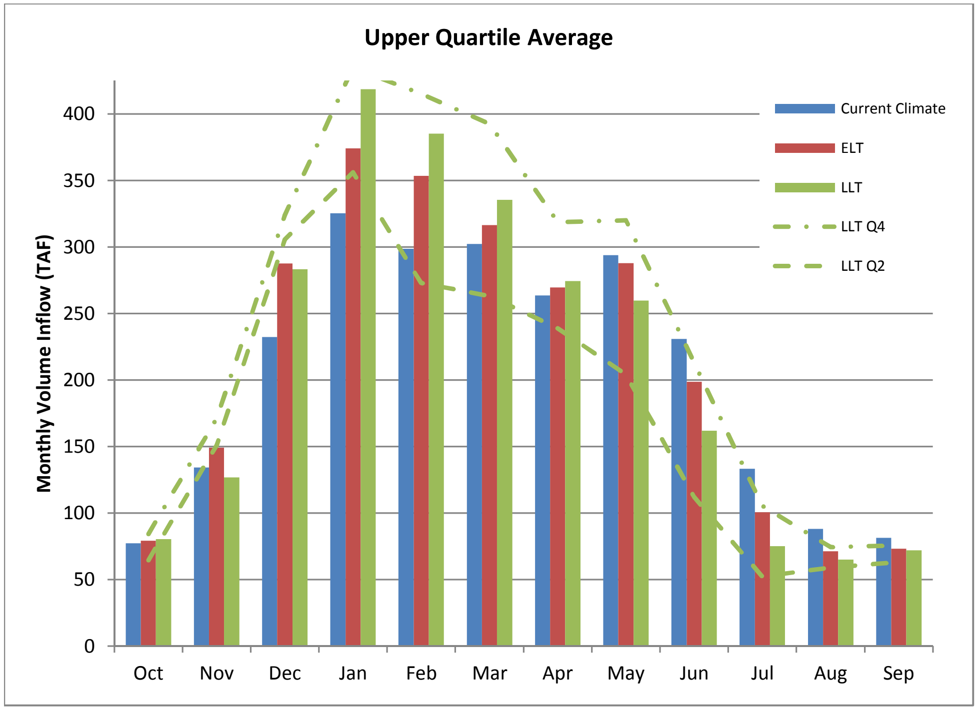


Figure 25B-12.
Folsom Lake,
Monthly Volume Inflow (TAF)

Table 25B-13. Lake Oroville, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	124	-4 (-3%)	-7 (-6%)
Nov	185	9 (5%)	-5 (-3%)
Dec	343	55 (16%)	67 (19%)
Jan	477	67 (14%)	135 (28%)
Feb	511	88 (17%)	149 (29%)
Mar	567	41 (7%)	69 (12%)
Apr	562	-11 (-2%)	-31 (-5%)
May	506	-57 (-11%)	-125 (-25%)
Jun	280	-62 (-22%)	-109 (-39%)
Jul	159	-32 (-20%)	-49 (-31%)
Aug	137	-15 (-11%)	-24 (-17%)
Sep	119	-10 (-9%)	-16 (-13%)
Annual (TAF/Yr)	3,967	69 (2%)	54 (1%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	124	-31 (-25%)	14 (11%)
Nov	185	-16 (-8%)	17 (9%)
Dec	343	41 (12%)	99 (29%)
Jan	477	59 (12%)	178 (37%)
Feb	511	30 (6%)	214 (42%)
Mar	567	-38 (-7%)	148 (26%)
Apr	562	-110 (-20%)	63 (11%)
May	506	-209 (-41%)	-24 (-5%)
Jun	280	-150 (-53%)	-51 (-18%)
Jul	159	-65 (-41%)	-27 (-17%)
Aug	137	-36 (-26%)	-10 (-7%)
Sep	119	-28 (-24%)	-6 (-5%)
Annual (TAF/Yr)	3,967	-551 (-14%)	616 (16%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	56	-5 (-8%)	-7 (-13%)
Nov	64	-2 (-4%)	-7 (-11%)
Dec	89	1 (1%)	-2 (-2%)
Jan	141	9 (6%)	16 (11%)
Feb	169	17 (10%)	34 (20%)
Mar	255	6 (2%)	14 (6%)
Apr	241	-16 (-7%)	-28 (-12%)
May	187	-28 (-15%)	-49 (-26%)
Jun	106	-18 (-17%)	-29 (-28%)
Jul	82	-11 (-14%)	-17 (-20%)
Aug	85	-8 (-9%)	-12 (-14%)
Sep	76	-7 (-9%)	-10 (-13%)
Annual (TAF/Yr)	1,879	-55 (-3%)	-71 (-4%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	56	-17 (-30%)	-1 (-1%)
Nov	64	-18 (-27%)	4 (6%)
Dec	89	-15 (-17%)	8 (9%)
Jan	141	-9 (-6%)	29 (20%)
Feb	169	-1 (-1%)	48 (28%)
Mar	255	-45 (-18%)	45 (18%)
Apr	241	-75 (-31%)	10 (4%)
May	187	-77 (-41%)	-15 (-8%)
Jun	106	-42 (-40%)	-12 (-11%)
Jul	82	-26 (-32%)	-7 (-9%)
Aug	85	-22 (-26%)	-3 (-3%)
Sep	76	-19 (-25%)	-4 (-5%)
Annual (TAF/Yr)	1,879	-409 (-22%)	193 (10%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-13. Lake Oroville, Monthly Volume Inflow (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	203	1 (1%)	5 (3%)
Nov	372	38 (10%)	8 (2%)
Dec	822	170 (21%)	192 (23%)
Jan	1,077	189 (18%)	368 (34%)
Feb	995	204 (20%)	337 (34%)
Mar	1,074	103 (10%)	159 (15%)
Apr	984	22 (2%)	7 (1%)
May	986	-85 (-9%)	-223 (-23%)
Jun	544	-123 (-23%)	-230 (-42%)
Jul	263	-66 (-25%)	-102 (-39%)
Aug	198	-28 (-14%)	-43 (-22%)
Sep	172	-14 (-8%)	-21 (-12%)
Annual (TAF/Yr)	6,617	291 (4%)	287 (4%)

LLT Sensitivity - Upper Quartile Average[1,3]

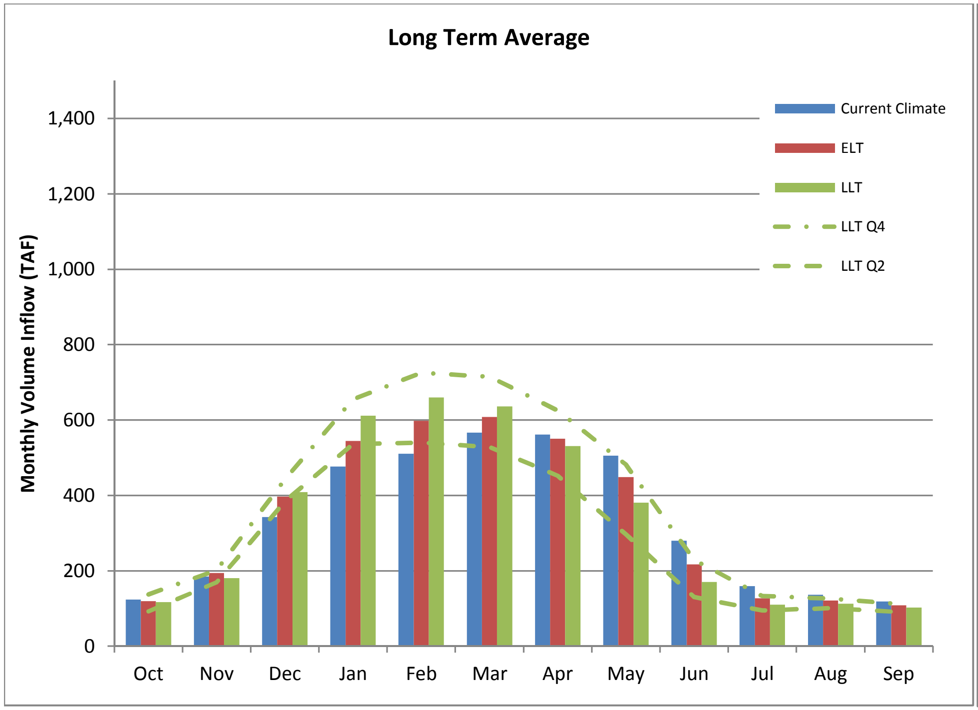
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	203	-44 (-21%)	56 (28%)
Nov	372	11 (3%)	39 (11%)
Dec	822	156 (19%)	259 (31%)
Jan	1,077	204 (19%)	469 (44%)
Feb	995	100 (10%)	488 (49%)
Mar	1,074	-30 (-3%)	339 (32%)
Apr	984	-101 (-10%)	177 (18%)
May	986	-386 (-39%)	-24 (-2%)
Jun	544	-315 (-58%)	-102 (-19%)
Jul	263	-127 (-48%)	-58 (-22%)
Aug	198	-58 (-29%)	-21 (-10%)
Sep	172	-39 (-23%)	-9 (-6%)
Annual (TAF/Yr)	6,617	-556 (-8%)	1182 (18%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



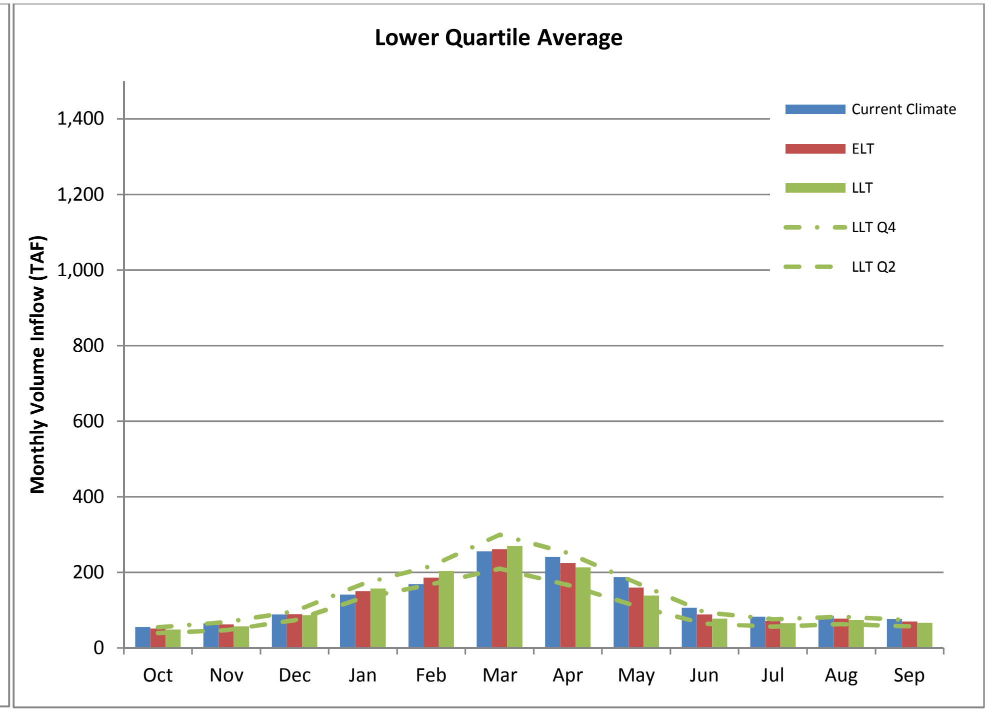


Figure 25B-13.
Lake Oroville,
Monthly Volume Inflow (TAF)

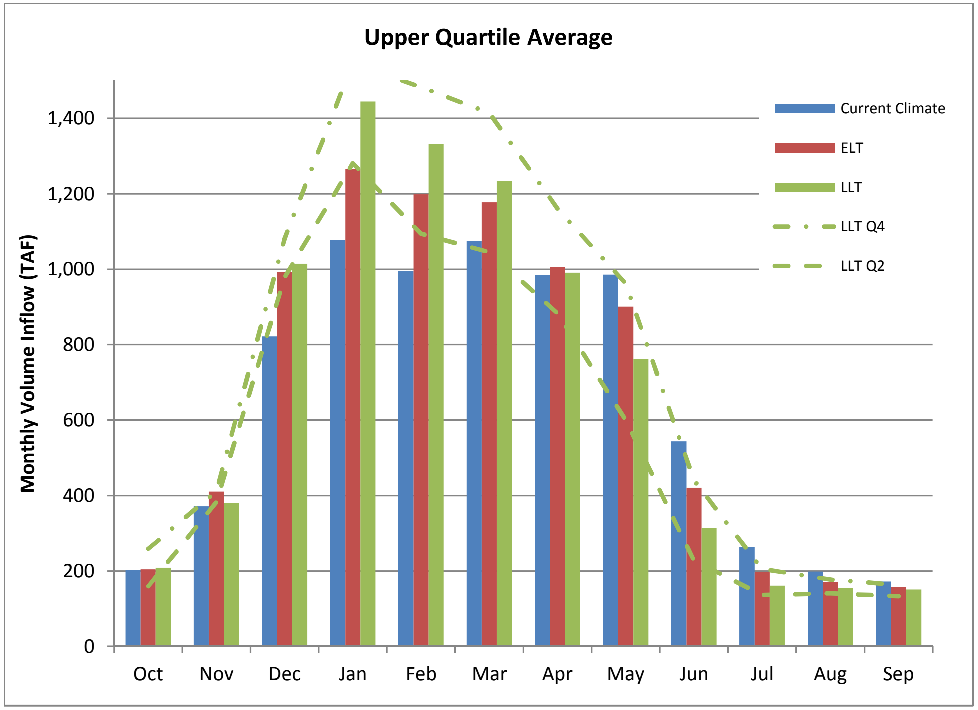


Figure 25B-13.
Lake Oroville,
Monthly Volume Inflow (TAF)

Table 25B-14. X2, Monthly Position (KM)

LLT Q0 and LLT Comparison - Long Term Average[1,2]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	84.0	-0.3 (0%)	-0.3 (0%)
Nov	82.2	-0.1 (0%)	0.5 (1%)
Dec	76.3	1.5 (2%)	1.8 (2%)
Jan	67.3	2.4 (4%)	2.1 (3%)
Feb	60.8	3.1 (5%)	2.7 (4%)
Mar	60.9	2.8 (5%)	2.6 (4%)
Apr	63.7	2.4 (4%)	2.8 (4%)
May	67.8	2.3 (3%)	3.6 (5%)
Jun	74.7	1.2 (2%)	2.8 (4%)
Jul	80.3	-0.4 (0%)	0.4 (0%)
Aug	85.1	0.1 (0%)	0.6 (1%)
Sep	83.5	0.3 (0%)	0.9 (1%)

LLT Q0 and LLT Comparison - Lower Quartile Average[1,3]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	73.1	0.6 (1%)	0.7 (1%)
Nov	70.4	0.9 (1%)	1.7 (2%)
Dec	56.5	3 (5%)	2.9 (5%)
Jan	49.0	4 (8%)	3.4 (7%)
Feb	47.9	3.5 (7%)	3.1 (7%)
Mar	48.7	3.4 (7%)	3 (6%)
Apr	51.0	3.3 (6%)	3.4 (7%)
May	54.7	2.8 (5%)	4.3 (8%)
Jun	61.3	2 (3%)	6.6 (11%)
Jul	72.5	0.1 (0%)	2.5 (3%)
Aug	81.3	0.2 (0%)	1.8 (2%)
Sep	73.3	0 (0%)	0.6 (1%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-14. X2, Monthly Position (KM)

LLT Q0 and LLT Comparison - Upper Quartile Average[1,3]

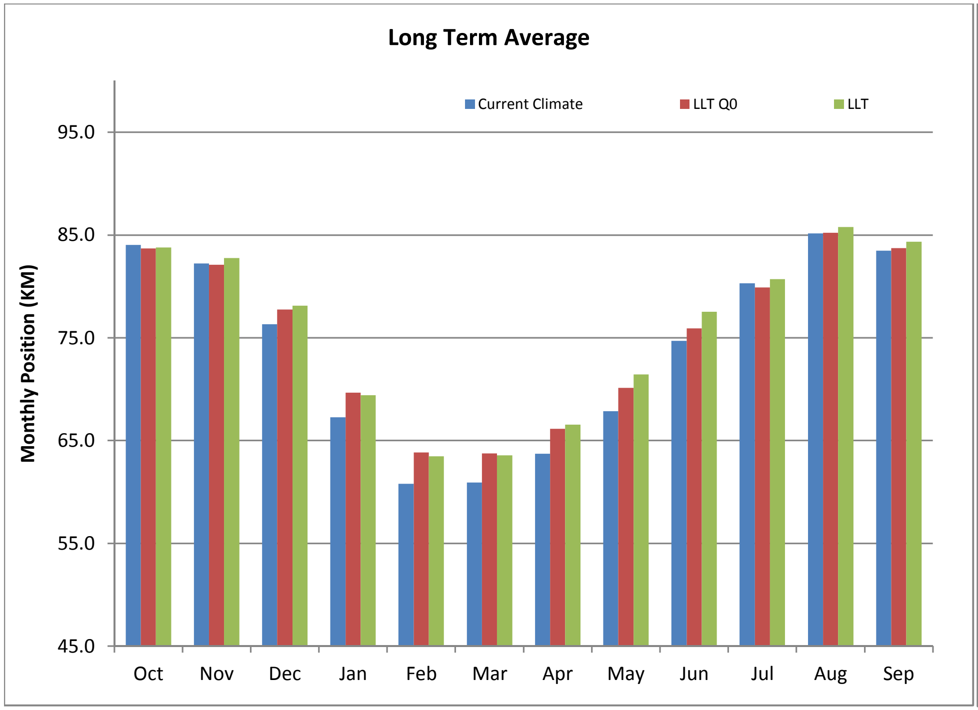
Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	92.6	-0.6 (-1%)	-0.8 (-1%)
Nov	91.9	-0.6 (-1%)	-0.1 (0%)
Dec	90.1	-0.5 (-1%)	0 (0%)
Jan	83.8	1.1 (1%)	1 (1%)
Feb	76.7	2.2 (3%)	2.2 (3%)
Mar	74.9	1.8 (2%)	2 (3%)
Apr	76.4	1.7 (2%)	2 (3%)
May	80.7	1.4 (2%)	1.3 (2%)
Jun	84.2	1.1 (1%)	0.8 (1%)
Jul	86.7	-0.2 (0%)	0 (0%)
Aug	88.4	0.3 (0%)	0.6 (1%)
Sep	90.9	1 (1%)	1.2 (1%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



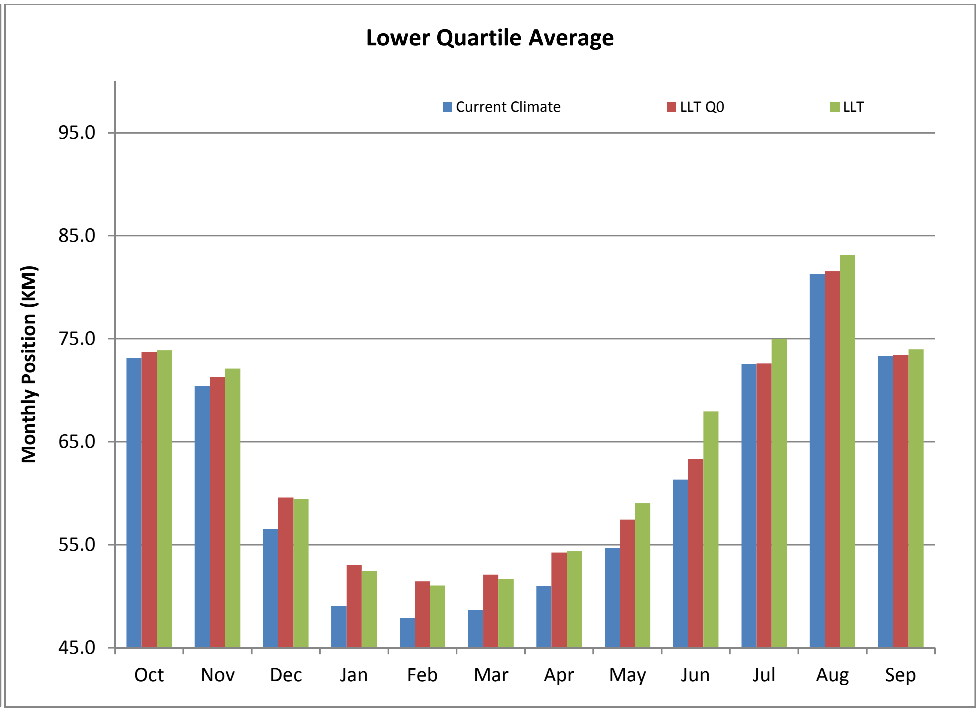


Figure 25B-14.
X2,
Monthly Position (KM)

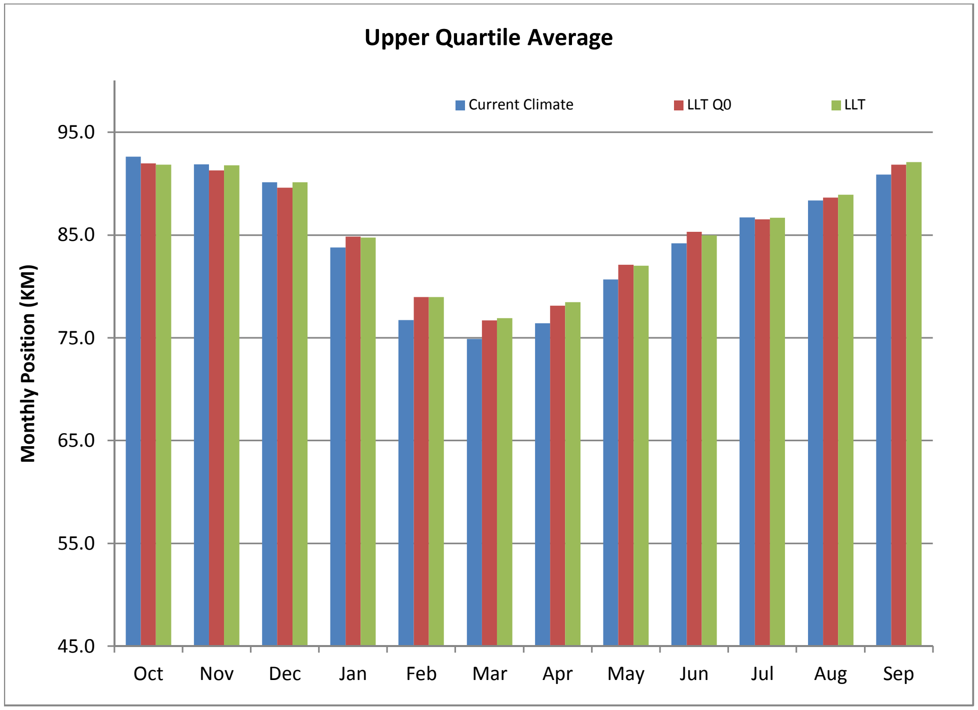


Figure 25B-14.
X2,
Monthly Position (KM)

Table 25B-15. Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

LLT Q0 and LLT Comparison - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	5,927	2109 (36%)	2301 (39%)
Nov	11,674	235 (2%)	-818 (-7%)
Dec	21,446	-79 (0%)	722 (3%)
Jan	42,528	-408 (-1%)	3743 (9%)
Feb	51,653	-613 (-1%)	4775 (9%)
Mar	42,537	-54 (0%)	2727 (6%)
Apr	29,887	89 (0%)	-477 (-2%)
May	22,080	58 (0%)	-2958 (-13%)
Jun	12,750	619 (5%)	-2114 (-17%)
Jul	8,048	1562 (19%)	1019 (13%)
Aug	4,593	462 (10%)	142 (3%)
Sep	9,663	481 (5%)	100 (1%)
Annual (TAF/Yr)	15,747	275 (2%)	543 (3%)

LLT Q0 and LLT Comparison - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	3,630	642 (18%)	1257 (35%)
Nov	4,334	2 (0%)	-214 (-5%)
Dec	4,371	187 (4%)	177 (4%)
Jan	9,066	-60 (-1%)	-170 (-2%)
Feb	10,568	211 (2%)	503 (5%)
Mar	10,216	664 (6%)	538 (5%)
Apr	9,507	387 (4%)	101 (1%)
May	7,031	416 (6%)	647 (9%)
Jun	5,426	714 (13%)	806 (15%)
Jul	4,609	768 (17%)	314 (7%)
Aug	3,959	-103 (-3%)	-108 (-3%)
Sep	3,000	0 (0%)	0 (0%)
Annual (TAF/Yr)	5,699	412 (7%)	355 (6%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-15. Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

LLT Q0 and LLT Comparison - Upper Quartile Average[1,3]

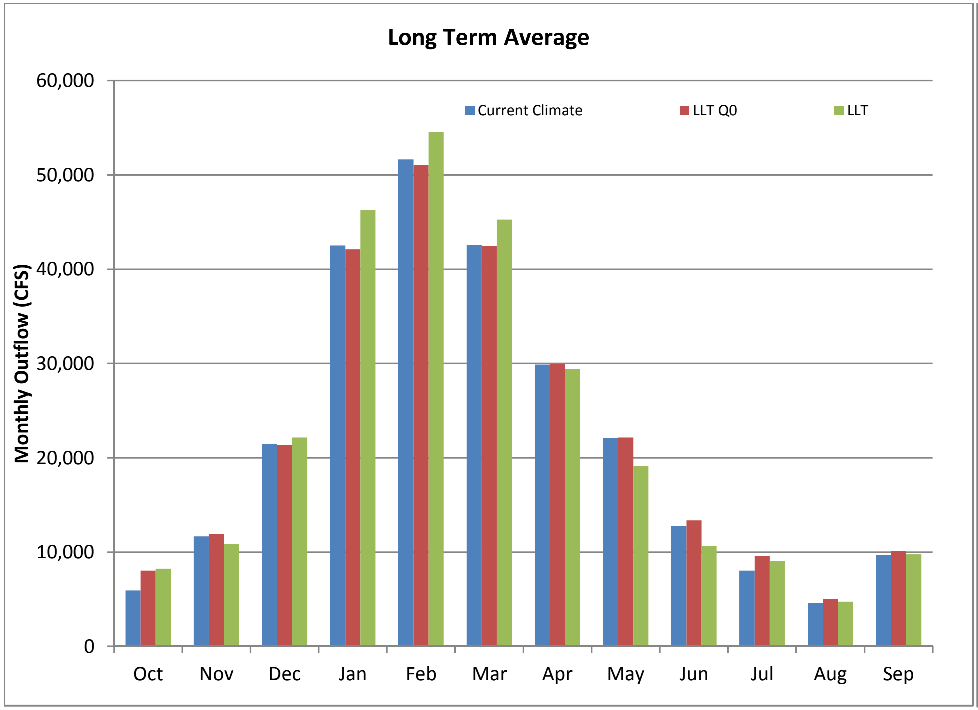
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q0)	No Action Alternative (LLT)
Oct	9,584	2948 (31%)	2658 (28%)
Nov	23,962	-470 (-2%)	-2505 (-10%)
Dec	61,028	-1761 (-3%)	1161 (2%)
Jan	107,343	-993 (-1%)	13377 (12%)
Feb	120,746	-1544 (-1%)	14829 (12%)
Mar	101,641	-583 (-1%)	8297 (8%)
Apr	68,219	11 (0%)	31 (0%)
May	49,176	-812 (-2%)	-8089 (-16%)
Jun	28,977	168 (1%)	-10392 (-36%)
Jul	13,097	2405 (18%)	805 (6%)
Aug	6,089	1165 (19%)	156 (3%)
Sep	20,138	900 (4%)	978 (5%)
Annual (TAF/Yr)	31,557	74 (0%)	1049 (3%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



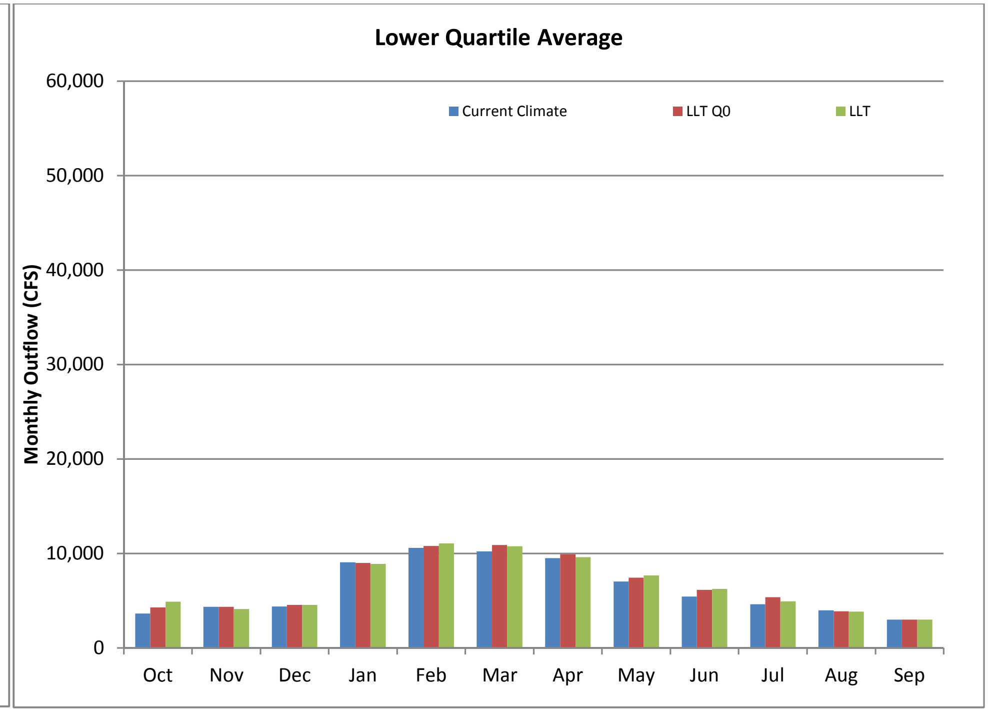


Figure 25B-15.
Sacramento/San Joaquin River Delta,
Monthly Outflow (CFS)

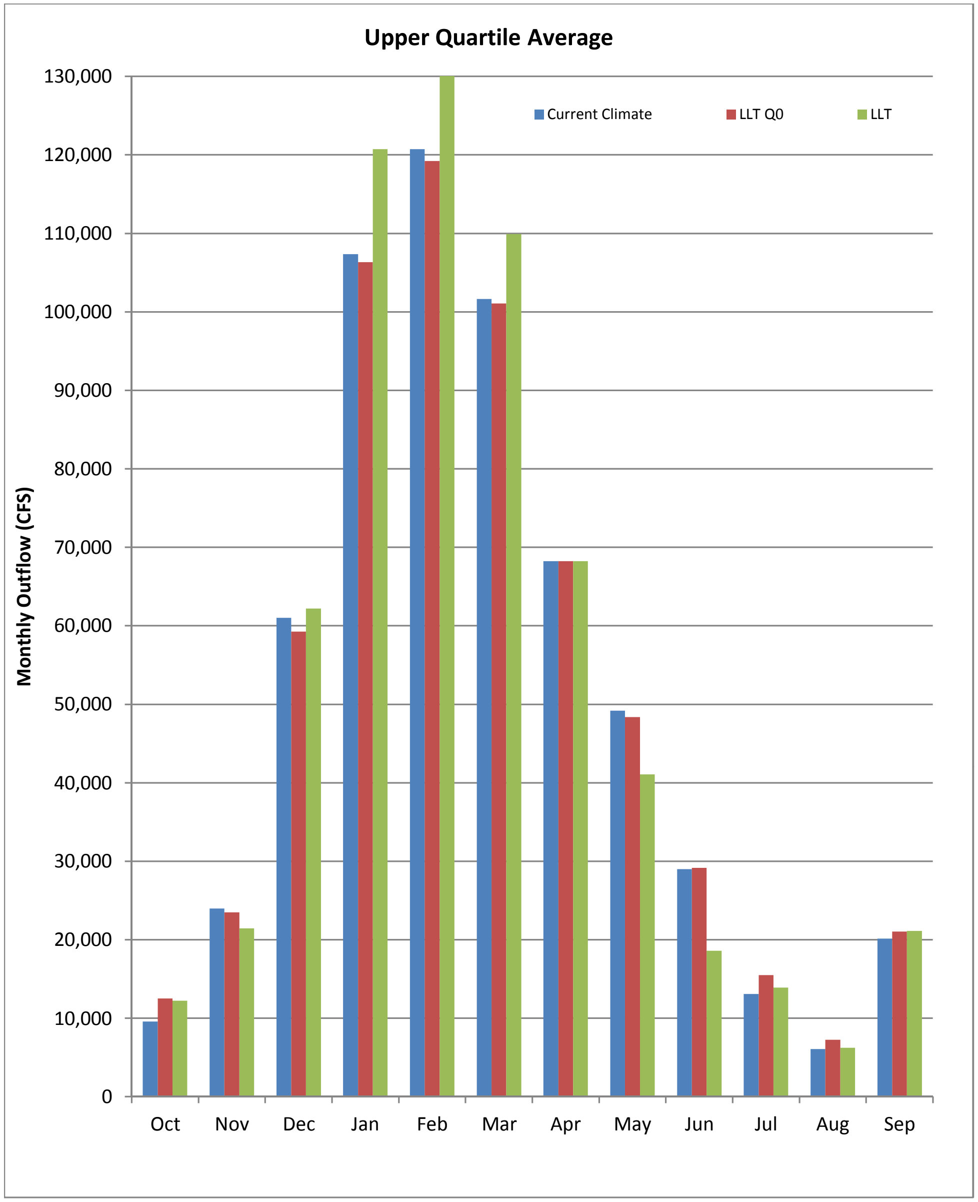


Figure 25B-15.
Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

Table 25B-16. Sacramento River below Keswick Reservoir, Monthly Flow (CFS)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	6,191	-145 (-2%)	564 (9%)
Nov	6,373	11 (0%)	-42 (-1%)
Dec	6,696	598 (9%)	-151 (-2%)
Jan	8,274	554 (7%)	936 (11%)
Feb	10,211	809 (8%)	868 (8%)
Mar	8,555	17 (0%)	245 (3%)
Apr	6,942	-174 (-3%)	-165 (-2%)
May	7,866	-541 (-7%)	-598 (-8%)
Jun	10,846	-48 (0%)	312 (3%)
Jul	13,210	237 (2%)	443 (3%)
Aug	10,550	-499 (-5%)	-361 (-3%)
Sep	8,069	-118 (-1%)	39 (0%)
Annual (TAF/Yr)	6,262	39 (1%)	123 (2%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	6,191	-547 (-9%)	1631 (26%)
Nov	6,373	-1206 (-19%)	821 (13%)
Dec	6,696	-1739 (-26%)	1181 (18%)
Jan	8,274	-1555 (-19%)	3088 (37%)
Feb	10,211	-2142 (-21%)	4466 (44%)
Mar	8,555	-1551 (-18%)	2172 (25%)
Apr	6,942	-816 (-12%)	1389 (20%)
May	7,866	-896 (-11%)	835 (11%)
Jun	10,846	-43 (0%)	565 (5%)
Jul	13,210	-1136 (-9%)	920 (7%)
Aug	10,550	-1555 (-15%)	507 (5%)
Sep	8,069	-1276 (-16%)	1693 (21%)
Annual (TAF/Yr)	6,262	-872 (-14%)	1152 (18%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	4,324	-277 (-6%)	-300 (-7%)
Nov	3,708	-112 (-3%)	-119 (-3%)
Dec	3,282	-1 (0%)	-10 (0%)
Jan	3,250	0 (0%)	0 (0%)
Feb	3,250	0 (0%)	0 (0%)
Mar	3,250	0 (0%)	0 (0%)
Apr	3,898	-32 (-1%)	-9 (0%)
May	5,375	-145 (-3%)	-241 (-4%)
Jun	8,921	-367 (-4%)	-484 (-5%)
Jul	10,941	40 (0%)	-361 (-3%)
Aug	8,741	-713 (-8%)	-1243 (-14%)
Sep	4,625	-461 (-10%)	-635 (-14%)
Annual (TAF/Yr)	4,253	-111 (-3%)	-57 (-1%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	4,324	-995 (-23%)	941 (22%)
Nov	3,708	-483 (-13%)	251 (7%)
Dec	3,282	-167 (-5%)	11 (0%)
Jan	3,250	-71 (-2%)	0 (0%)
Feb	3,250	-23 (-1%)	0 (0%)
Mar	3,250	0 (0%)	0 (0%)
Apr	3,898	3 (0%)	86 (2%)
May	5,375	-829 (-15%)	283 (5%)
Jun	8,921	-1653 (-19%)	-37 (0%)
Jul	10,941	-3815 (-35%)	909 (8%)
Aug	8,741	-3241 (-37%)	459 (5%)
Sep	4,625	-1079 (-23%)	674 (15%)
Annual (TAF/Yr)	4,253	-722 (-17%)	624 (15%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-16. Sacramento River below Keswick Reservoir, Monthly Flow (CFS)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	8,344	-374 (-4%)	1396 (17%)
Nov	10,649	222 (2%)	290 (3%)
Dec	14,889	2204 (15%)	-447 (-3%)
Jan	20,231	1723 (9%)	3197 (16%)
Feb	26,446	2731 (10%)	3200 (12%)
Mar	20,857	318 (2%)	1237 (6%)
Apr	12,102	-101 (-1%)	-91 (-1%)
May	10,868	-959 (-9%)	-729 (-7%)
Jun	13,339	128 (1%)	683 (5%)
Jul	15,137	-134 (-1%)	372 (2%)
Aug	12,579	-524 (-4%)	-235 (-2%)
Sep	13,219	-6 (0%)	790 (6%)
Annual (TAF/Yr)	8,967	178 (2%)	335 (4%)

LLT Sensitivity - Upper Quartile Average[1,3]

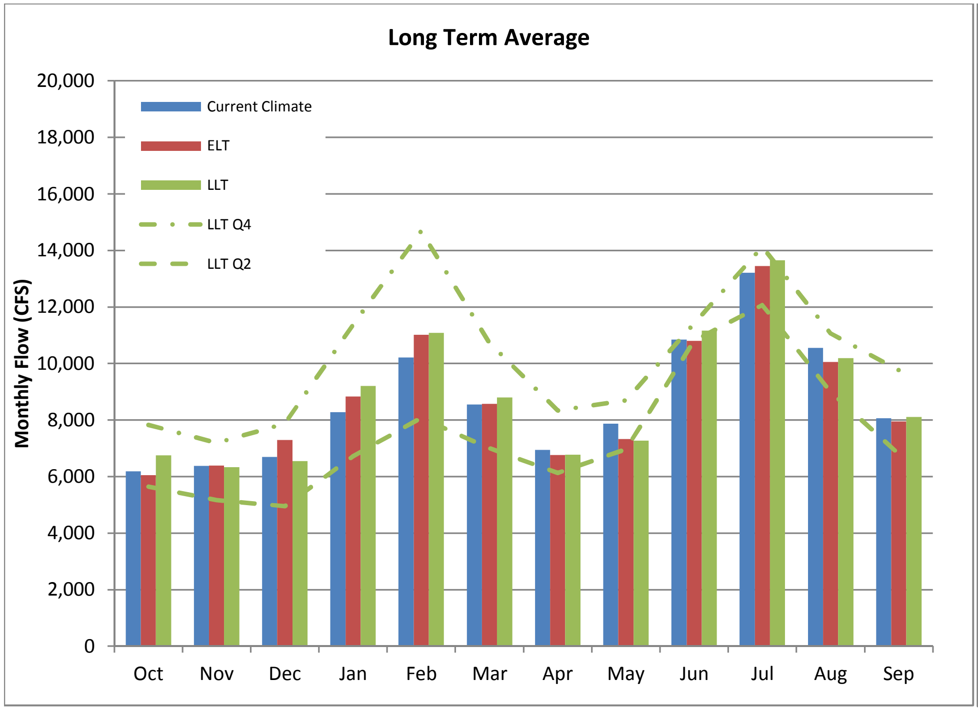
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	8,344	309 (4%)	2332 (28%)
Nov	10,649	-2025 (-19%)	891 (8%)
Dec	14,889	-6054 (-41%)	4417 (30%)
Jan	20,231	-4800 (-24%)	8628 (43%)
Feb	26,446	-5832 (-22%)	11760 (44%)
Mar	20,857	-4704 (-23%)	5602 (27%)
Apr	12,102	-2402 (-20%)	3971 (33%)
May	10,868	-921 (-8%)	1758 (16%)
Jun	13,339	634 (5%)	1252 (9%)
Jul	15,137	-17 (0%)	134 (1%)
Aug	12,579	-1027 (-8%)	349 (3%)
Sep	13,219	-651 (-5%)	1438 (11%)
Annual (TAF/Yr)	8,967	-1000 (-11%)	1769 (20%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



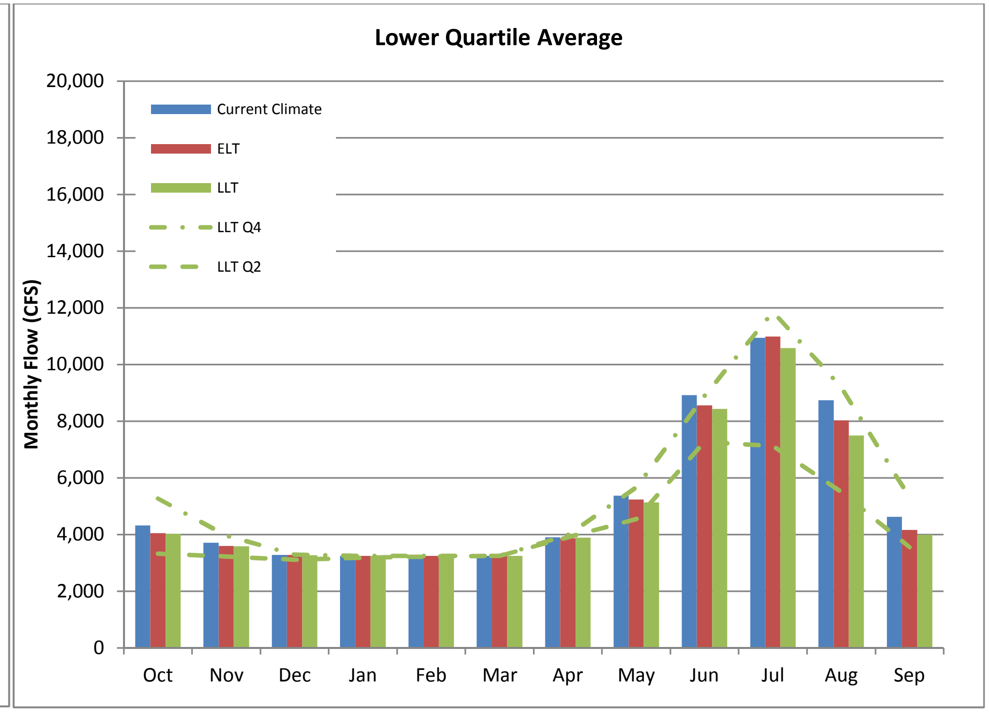


Figure 25B-16.
Sacramento River below Keswick Reservoir,
Monthly Flow (CFS)

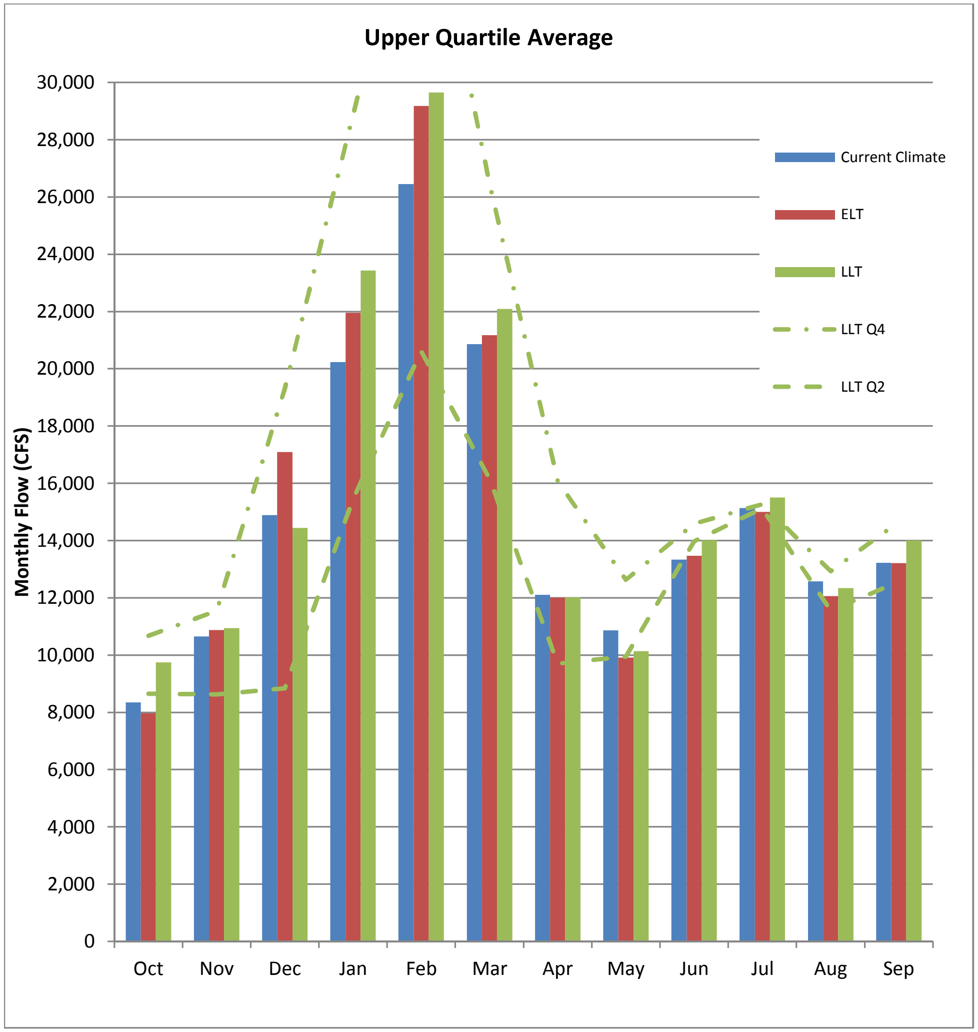


Figure 25B-16.
Sacramento River below Keswick Reservoir, Monthly Flow (CFS)

Table 25B-17. Sacramento River below Hood, Monthly Flow (CFS)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	11,090	-38 (0%)	644 (6%)
Nov	15,637	-249 (-2%)	-983 (-6%)
Dec	23,085	636 (3%)	-334 (-1%)
Jan	31,464	607 (2%)	1134 (4%)
Feb	36,638	1059 (3%)	1544 (4%)
Mar	32,437	371 (1%)	749 (2%)
Apr	23,161	-229 (-1%)	-338 (-1%)
May	18,934	-1079 (-6%)	-2560 (-14%)
Jun	16,432	-1415 (-9%)	-1474 (-9%)
Jul	19,394	-15 (0%)	379 (2%)
Aug	15,017	-487 (-3%)	-162 (-1%)
Sep	17,468	-422 (-2%)	-740 (-4%)
Annual (TAF/Yr)	15,688	-79 (-1%)	-133 (-1%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	11,090	-970 (-9%)	2010 (18%)
Nov	15,637	-2650 (-17%)	1088 (7%)
Dec	23,085	-2285 (-10%)	2168 (9%)
Jan	31,464	-2523 (-8%)	3682 (12%)
Feb	36,638	-2972 (-8%)	4760 (13%)
Mar	32,437	-3384 (-10%)	4105 (13%)
Apr	23,161	-2902 (-13%)	3329 (14%)
May	18,934	-5174 (-27%)	1715 (9%)
Jun	16,432	-2179 (-13%)	6 (0%)
Jul	19,394	-2427 (-13%)	1744 (9%)
Aug	15,017	-1754 (-12%)	753 (5%)
Sep	17,468	-3642 (-21%)	2505 (14%)
Annual (TAF/Yr)	15,688	-1982 (-13%)	1674 (11%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	8,020	-405 (-5%)	-81 (-1%)
Nov	8,072	-242 (-3%)	-470 (-6%)
Dec	10,333	-263 (-3%)	-491 (-5%)
Jan	12,350	-14 (0%)	-96 (-1%)
Feb	12,976	-201 (-2%)	66 (1%)
Mar	12,250	-113 (-1%)	222 (2%)
Apr	9,868	-64 (-1%)	314 (3%)
May	8,508	180 (2%)	134 (2%)
Jun	10,381	-84 (-1%)	569 (5%)
Jul	14,319	-920 (-6%)	-1222 (-9%)
Aug	10,511	-873 (-8%)	-262 (-2%)
Sep	8,790	-841 (-10%)	-1282 (-15%)
Annual (TAF/Yr)	8,895	-170 (-2%)	-118 (-1%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	8,020	-1209 (-15%)	1009 (13%)
Nov	8,072	-1256 (-16%)	846 (10%)
Dec	10,333	-1831 (-18%)	207 (2%)
Jan	12,350	-1132 (-9%)	703 (6%)
Feb	12,976	-941 (-7%)	1219 (9%)
Mar	12,250	-753 (-6%)	838 (7%)
Apr	9,868	-161 (-2%)	591 (6%)
May	8,508	-767 (-9%)	917 (11%)
Jun	10,381	-203 (-2%)	823 (8%)
Jul	14,319	-4446 (-31%)	1502 (10%)
Aug	10,511	-2114 (-20%)	916 (9%)
Sep	8,790	-1749 (-20%)	93 (1%)
Annual (TAF/Yr)	8,895	-1200 (-13%)	860 (10%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-17. Sacramento River below Hood, Monthly Flow (CFS)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	15,166	-36 (0%)	197 (1%)
Nov	26,347	-663 (-3%)	-2340 (-9%)
Dec	47,131	2867 (6%)	-180 (0%)
Jan	62,017	2103 (3%)	3506 (6%)
Feb	66,296	2798 (4%)	4072 (6%)
Mar	60,921	1034 (2%)	1775 (3%)
Apr	48,131	-64 (0%)	-515 (-1%)
May	39,195	-2445 (-6%)	-7847 (-20%)
Jun	28,261	-4472 (-16%)	-7300 (-26%)
Jul	23,661	437 (2%)	543 (2%)
Aug	17,863	-336 (-2%)	56 (0%)
Sep	28,664	-424 (-1%)	-222 (-1%)
Annual (TAF/Yr)	24,241	-11 (0%)	-377 (-2%)

LLT Sensitivity - Upper Quartile Average[1,3]

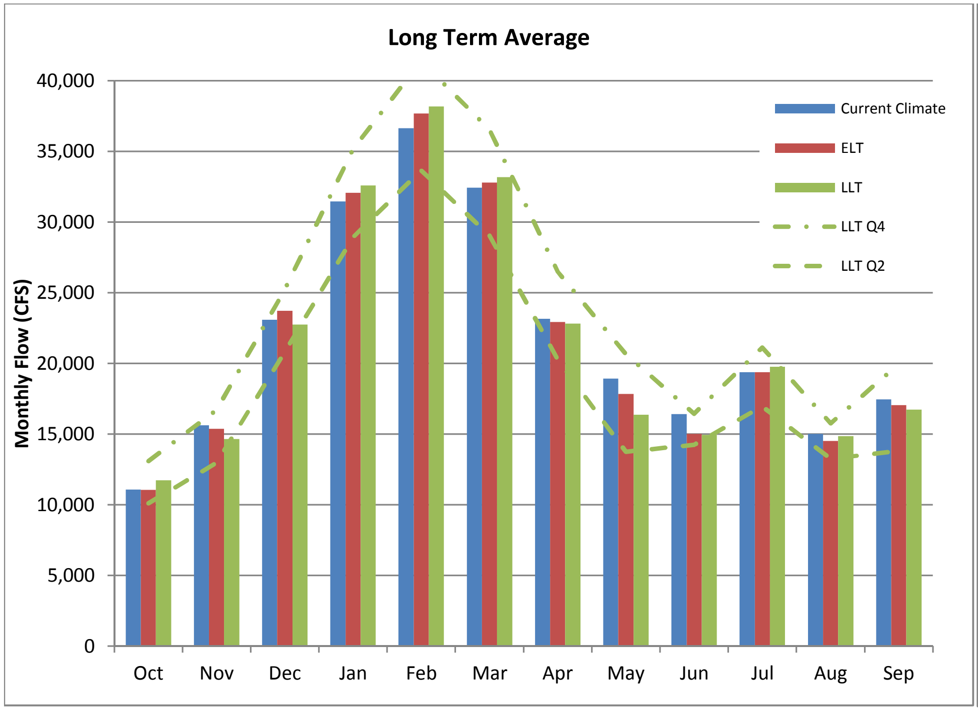
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	15,166	-941 (-6%)	2621 (17%)
Nov	26,347	-4313 (-16%)	925 (4%)
Dec	47,131	-4356 (-9%)	5842 (12%)
Jan	62,017	-2888 (-5%)	6476 (10%)
Feb	66,296	-3425 (-5%)	7370 (11%)
Mar	60,921	-4925 (-8%)	6074 (10%)
Apr	48,131	-6566 (-14%)	7213 (15%)
May	39,195	-15189 (-39%)	4238 (11%)
Jun	28,261	-8573 (-30%)	-2540 (-9%)
Jul	23,661	-516 (-2%)	785 (3%)
Aug	17,863	-503 (-3%)	1104 (6%)
Sep	28,664	-3359 (-12%)	1688 (6%)
Annual (TAF/Yr)	24,241	-2623 (-11%)	1967 (8%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



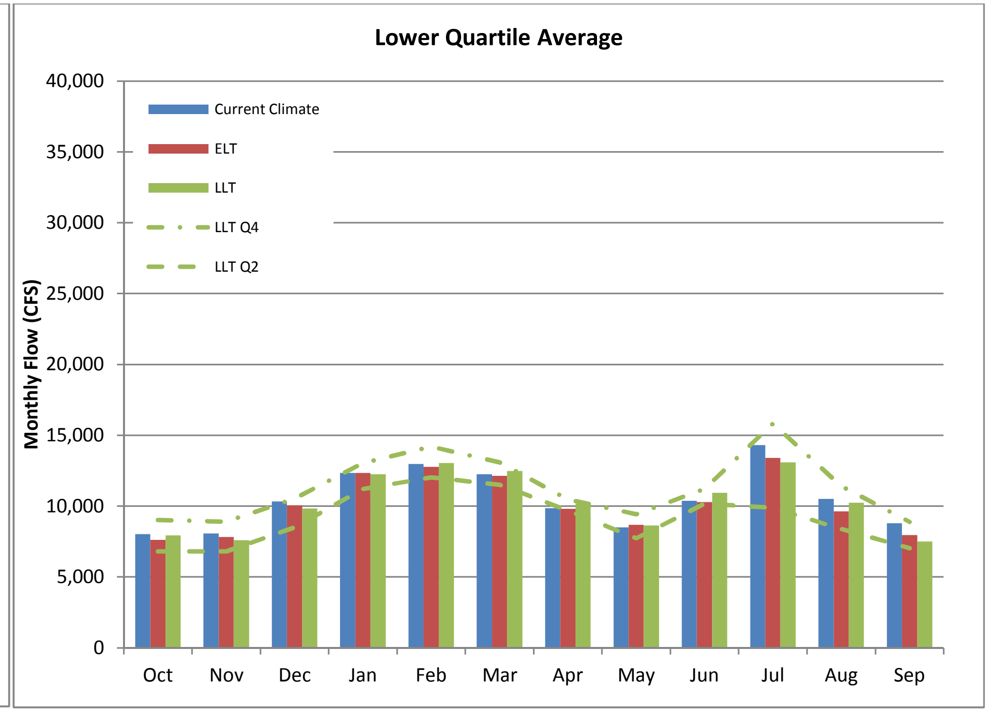


Figure 25B-17.
Sacramento River below Hood,
Monthly Flow (CFS)

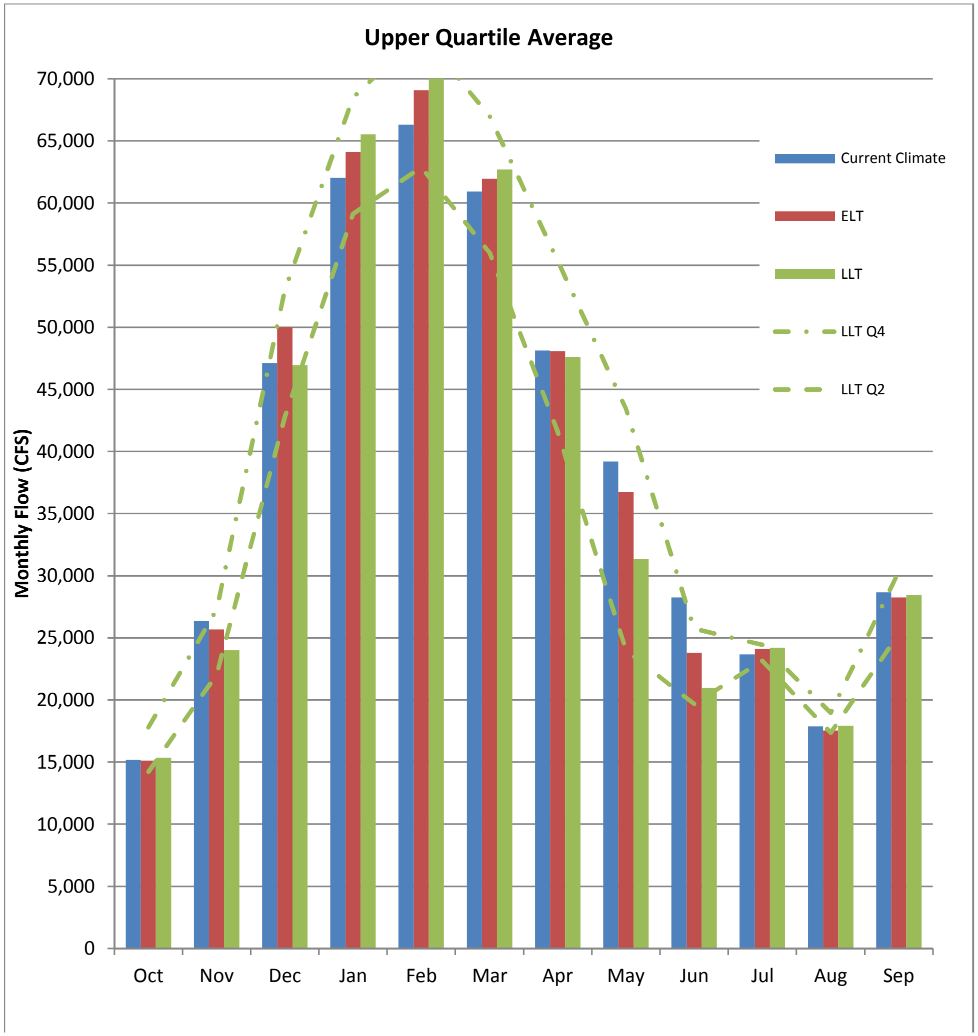


Figure 25B-17.
Sacramento River below Hood, Monthly Flow (CFS)

Table 25B-18. San Joaquin River at Vernalis, Monthly Flow (CFS)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	2,622	-59 (-2%)	-109 (-4%)
Nov	2,416	38 (2%)	-63 (-3%)
Dec	3,178	188 (6%)	8 (0%)
Jan	4,705	324 (7%)	282 (6%)
Feb	6,250	431 (7%)	87 (1%)
Mar	6,520	218 (3%)	243 (4%)
Apr	6,305	-17 (0%)	-14 (0%)
May	6,106	241 (4%)	-38 (-1%)
Jun	4,547	-580 (-13%)	-1340 (-29%)
Jul	3,229	-571 (-18%)	-1046 (-32%)
Aug	2,056	-198 (-10%)	-346 (-17%)
Sep	2,314	-88 (-4%)	-170 (-7%)
Annual (TAF/Yr)	3,024	-6 (0%)	-151 (-5%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	2,622	-369 (-14%)	96 (4%)
Nov	2,416	-138 (-6%)	256 (11%)
Dec	3,178	-216 (-7%)	521 (16%)
Jan	4,705	-320 (-7%)	1069 (23%)
Feb	6,250	-1554 (-25%)	2068 (33%)
Mar	6,520	-1740 (-27%)	1895 (29%)
Apr	6,305	-1295 (-21%)	1085 (17%)
May	6,106	-1167 (-19%)	1069 (18%)
Jun	4,547	-2080 (-46%)	104 (2%)
Jul	3,229	-1392 (-43%)	-187 (-6%)
Aug	2,056	-576 (-28%)	-32 (-2%)
Sep	2,314	-438 (-19%)	74 (3%)
Annual (TAF/Yr)	3,024	-677 (-22%)	479 (16%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	1,649	-78 (-5%)	-146 (-9%)
Nov	1,617	-1 (0%)	-9 (-1%)
Dec	1,601	-12 (-1%)	-17 (-1%)
Jan	1,569	-6 (0%)	-17 (-1%)
Feb	1,973	-41 (-2%)	-93 (-5%)
Mar	1,716	-60 (-3%)	-68 (-4%)
Apr	2,116	-129 (-6%)	-182 (-9%)
May	2,082	-126 (-6%)	-152 (-7%)
Jun	1,061	-29 (-3%)	-60 (-6%)
Jul	939	-38 (-4%)	-66 (-7%)
Aug	1,069	-50 (-5%)	-70 (-6%)
Sep	1,451	-36 (-2%)	-74 (-5%)
Annual (TAF/Yr)	1,216	-30 (-2%)	-65 (-5%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	1,649	-374 (-23%)	49 (3%)
Nov	1,617	-85 (-5%)	15 (1%)
Dec	1,601	-36 (-2%)	10 (1%)
Jan	1,569	-50 (-3%)	9 (1%)
Feb	1,973	-174 (-9%)	26 (1%)
Mar	1,716	-125 (-7%)	31 (2%)
Apr	2,116	-464 (-22%)	101 (5%)
May	2,082	-417 (-20%)	94 (5%)
Jun	1,061	-137 (-13%)	31 (3%)
Jul	939	-143 (-15%)	8 (1%)
Aug	1,069	-161 (-15%)	12 (1%)
Sep	1,451	-184 (-13%)	34 (2%)
Annual (TAF/Yr)	1,216	-146 (-12%)	24 (2%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-18. San Joaquin River at Vernalis, Monthly Flow (CFS)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	3,724	-48 (-1%)	-38 (-1%)
Nov	3,847	171 (4%)	-132 (-3%)
Dec	6,912	750 (11%)	26 (0%)
Jan	12,104	1209 (10%)	1112 (9%)
Feb	15,361	1482 (10%)	397 (3%)
Mar	15,856	989 (6%)	1575 (10%)
Apr	12,977	363 (3%)	747 (6%)
May	13,356	1201 (9%)	430 (3%)
Jun	12,197	-2047 (-17%)	-4819 (-40%)
Jul	8,554	-2065 (-24%)	-3834 (-45%)
Aug	3,721	-477 (-13%)	-932 (-25%)
Sep	3,654	-197 (-5%)	-358 (-10%)
Annual (TAF/Yr)	6,269	109 (2%)	-262 (-4%)

LLT Sensitivity - Upper Quartile Average[1,3]

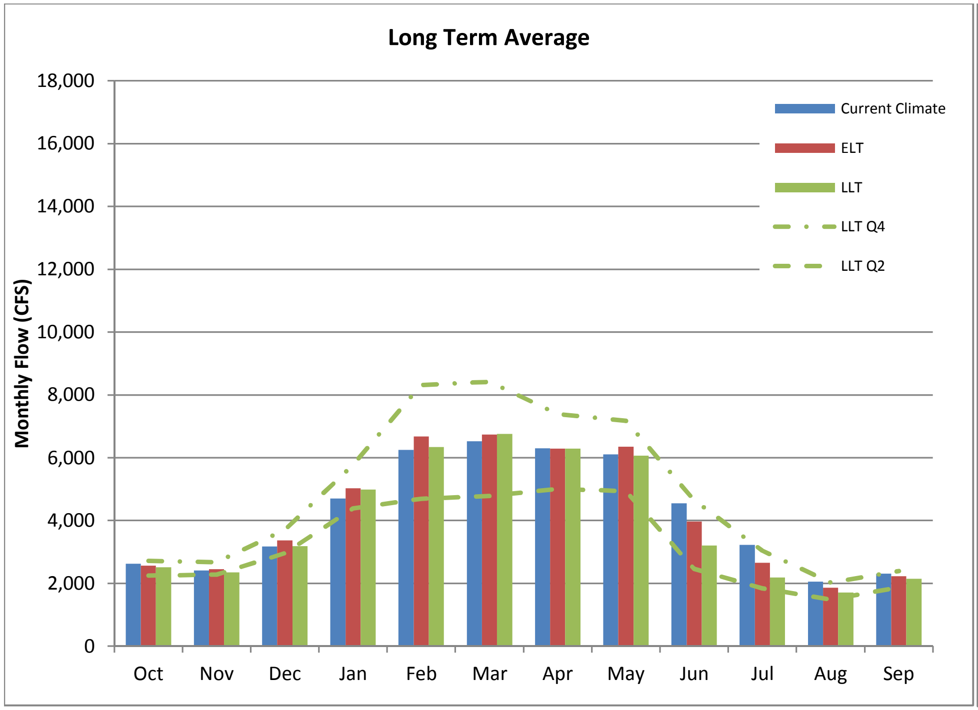
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	3,724	-303 (-8%)	180 (5%)
Nov	3,847	-259 (-7%)	902 (23%)
Dec	6,912	-776 (-11%)	1934 (28%)
Jan	12,104	-1102 (-9%)	3740 (31%)
Feb	15,361	-4590 (-30%)	6271 (41%)
Mar	15,856	-4244 (-27%)	5485 (35%)
Apr	12,977	-2268 (-17%)	3082 (24%)
May	13,356	-2344 (-18%)	3138 (23%)
Jun	12,197	-7106 (-58%)	81 (1%)
Jul	8,554	-4946 (-58%)	-743 (-9%)
Aug	3,721	-1520 (-41%)	-105 (-3%)
Sep	3,654	-1030 (-28%)	134 (4%)
Annual (TAF/Yr)	6,269	-1609 (-26%)	1275 (20%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



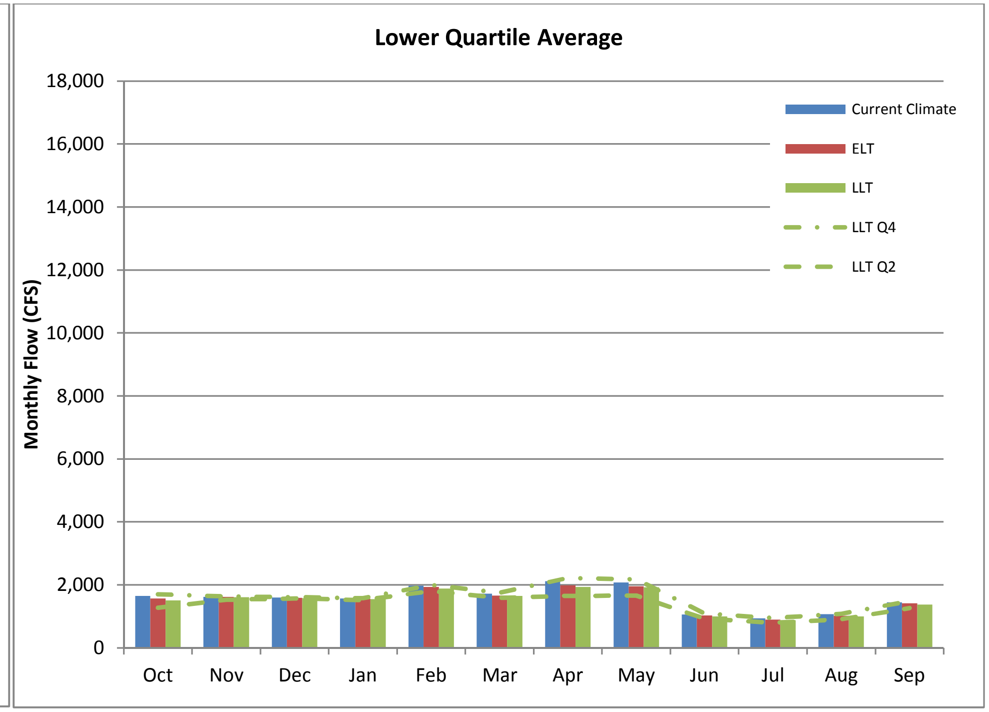


Figure 25B-18.
San Joaquin River at Vernalis,
Monthly Flow (CFS)

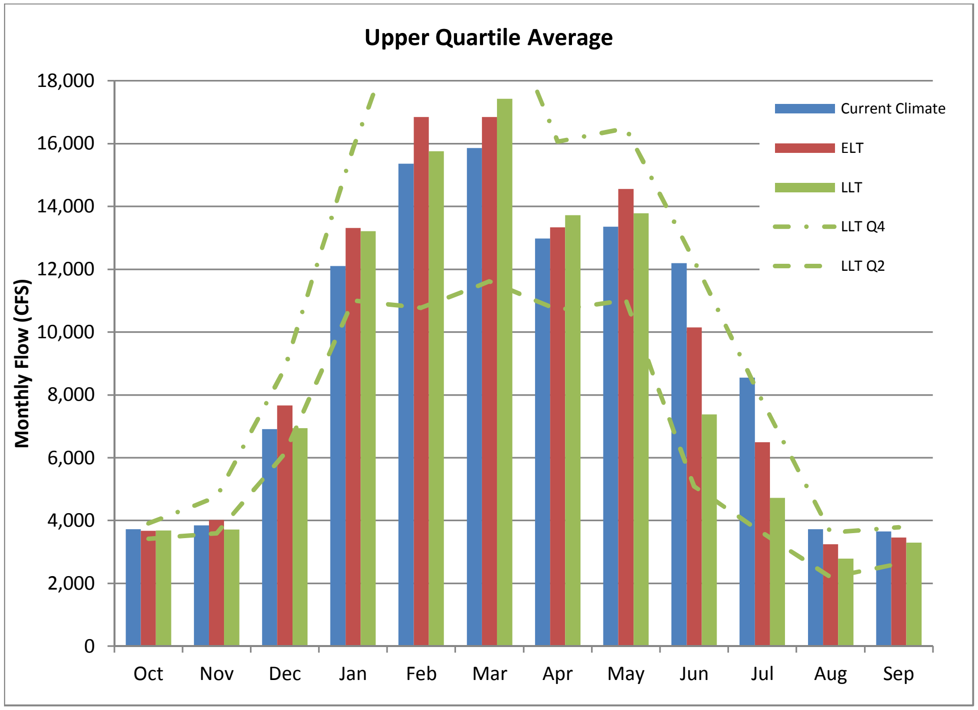


Figure 25B-18.
San Joaquin River at Vernalis, Monthly Flow (CFS)

Table 25B-19. Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	5,927	710 (12%)	2301 (39%)
Nov	11,674	-127 (-1%)	-818 (-7%)
Dec	21,446	2116 (10%)	722 (3%)
Jan	42,528	2402 (6%)	3743 (9%)
Feb	51,653	3696 (7%)	4775 (9%)
Mar	42,537	1452 (3%)	2727 (6%)
Apr	29,887	-261 (-1%)	-477 (-2%)
May	22,080	-1029 (-5%)	-2958 (-13%)
Jun	12,750	-1736 (-14%)	-2114 (-17%)
Jul	8,048	226 (3%)	1019 (13%)
Aug	4,593	-272 (-6%)	142 (3%)
Sep	9,663	-185 (-2%)	100 (1%)
Annual (TAF/Yr)	15,747	414 (3%)	543 (3%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	5,927	1050 (18%)	3394 (57%)
Nov	11,674	-1953 (-17%)	1552 (13%)
Dec	21,446	-1635 (-8%)	4852 (23%)
Jan	42,528	-3642 (-9%)	10097 (24%)
Feb	51,653	-6809 (-13%)	15151 (29%)
Mar	42,537	-6217 (-15%)	10535 (25%)
Apr	29,887	-5303 (-18%)	5798 (19%)
May	22,080	-6868 (-31%)	2851 (13%)
Jun	12,750	-2918 (-23%)	146 (1%)
Jul	8,048	-710 (-9%)	2485 (31%)
Aug	4,593	359 (8%)	318 (7%)
Sep	9,663	-2110 (-22%)	2084 (22%)
Annual (TAF/Yr)	15,747	-2200 (-14%)	3544 (23%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	3,630	-37 (-1%)	1257 (35%)
Nov	4,334	-277 (-6%)	-214 (-5%)
Dec	4,371	-9 (0%)	177 (4%)
Jan	9,066	-7 (0%)	-170 (-2%)
Feb	10,568	-165 (-2%)	503 (5%)
Mar	10,216	36 (0%)	538 (5%)
Apr	9,507	-284 (-3%)	101 (1%)
May	7,031	132 (2%)	647 (9%)
Jun	5,426	87 (2%)	806 (15%)
Jul	4,609	33 (1%)	314 (7%)
Aug	3,959	-126 (-3%)	-108 (-3%)
Sep	3,000	0 (0%)	0 (0%)
Annual (TAF/Yr)	5,699	49 (1%)	355 (6%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	3,630	147 (4%)	1588 (44%)
Nov	4,334	-371 (-9%)	23 (1%)
Dec	4,371	-124 (-3%)	199 (5%)
Jan	9,066	-274 (-3%)	560 (6%)
Feb	10,568	-245 (-2%)	1305 (12%)
Mar	10,216	-86 (-1%)	1101 (11%)
Apr	9,507	-304 (-3%)	1009 (11%)
May	7,031	-698 (-10%)	1368 (19%)
Jun	5,426	328 (6%)	1010 (19%)
Jul	4,609	-609 (-13%)	1915 (42%)
Aug	3,959	-29 (-1%)	-48 (-1%)
Sep	3,000	0 (0%)	1 (0%)
Annual (TAF/Yr)	5,699	-161 (-3%)	1002 (18%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-19. Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	9,584	1496 (16%)	2658 (28%)
Nov	23,962	-357 (-1%)	-2505 (-10%)
Dec	61,028	7954 (13%)	1161 (2%)
Jan	107,343	8996 (8%)	13377 (12%)
Feb	120,746	11691 (10%)	14829 (12%)
Mar	101,641	4882 (5%)	8297 (8%)
Apr	68,219	482 (1%)	31 (0%)
May	49,176	-1701 (-3%)	-8089 (-16%)
Jun	28,977	-5910 (-20%)	-10392 (-36%)
Jul	13,097	-216 (-2%)	805 (6%)
Aug	6,089	-829 (-14%)	156 (3%)
Sep	20,138	-726 (-4%)	978 (5%)
Annual (TAF/Yr)	31,557	1243 (4%)	1049 (3%)

LLT Sensitivity - Upper Quartile Average[1,3]

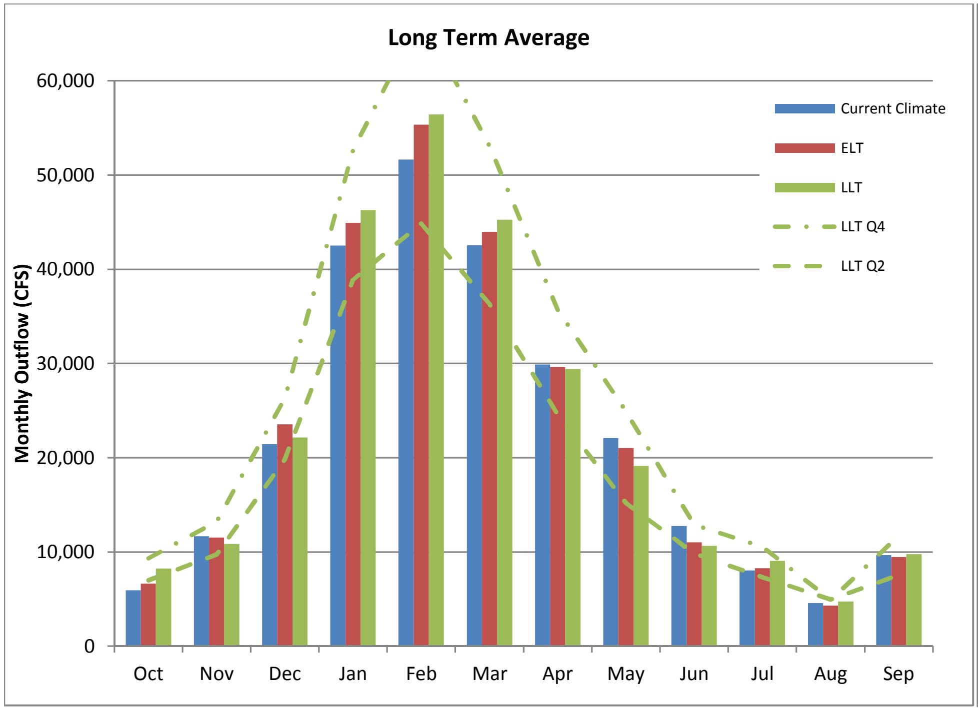
Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	9,584	1545 (16%)	4837 (50%)
Nov	23,962	-4537 (-19%)	2107 (9%)
Dec	61,028	-6014 (-10%)	15175 (25%)
Jan	107,343	-7124 (-7%)	29147 (27%)
Feb	120,746	-16228 (-13%)	39990 (33%)
Mar	101,641	-15941 (-16%)	27228 (27%)
Apr	68,219	-11872 (-17%)	14512 (21%)
May	49,176	-18175 (-37%)	7345 (15%)
Jun	28,977	-13003 (-45%)	-2538 (-9%)
Jul	13,097	-520 (-4%)	2014 (15%)
Aug	6,089	137 (2%)	936 (15%)
Sep	20,138	-2735 (-14%)	1008 (5%)
Annual (TAF/Yr)	31,557	-4393 (-14%)	6744 (21%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



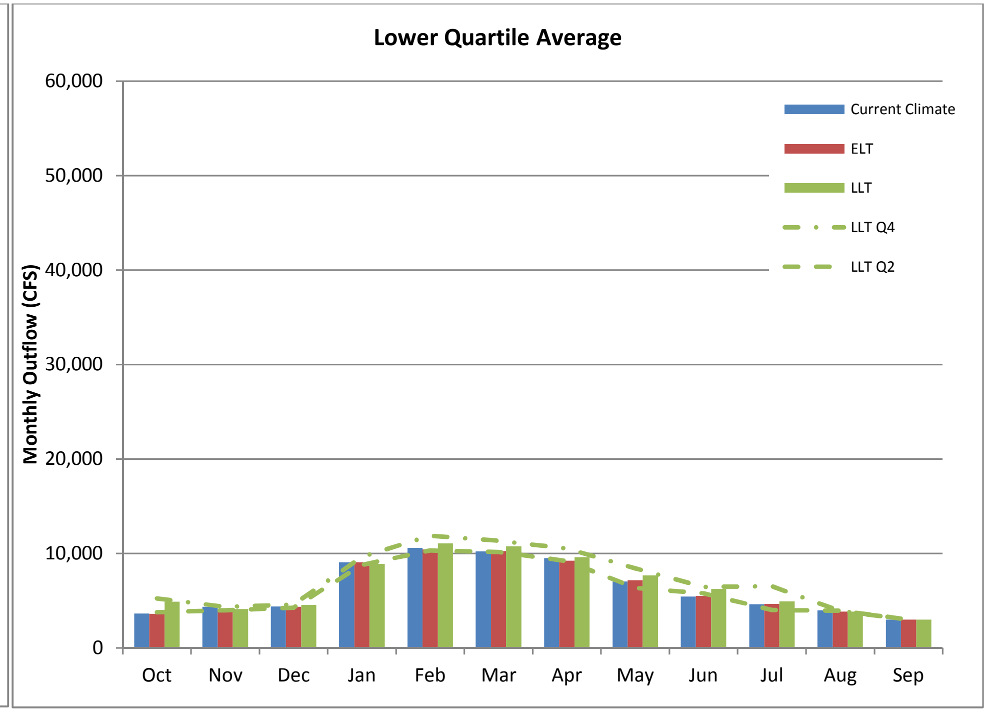


Figure 25B-19.
Sacramento/San Joaquin River Delta,
Monthly Outflow (CFS)

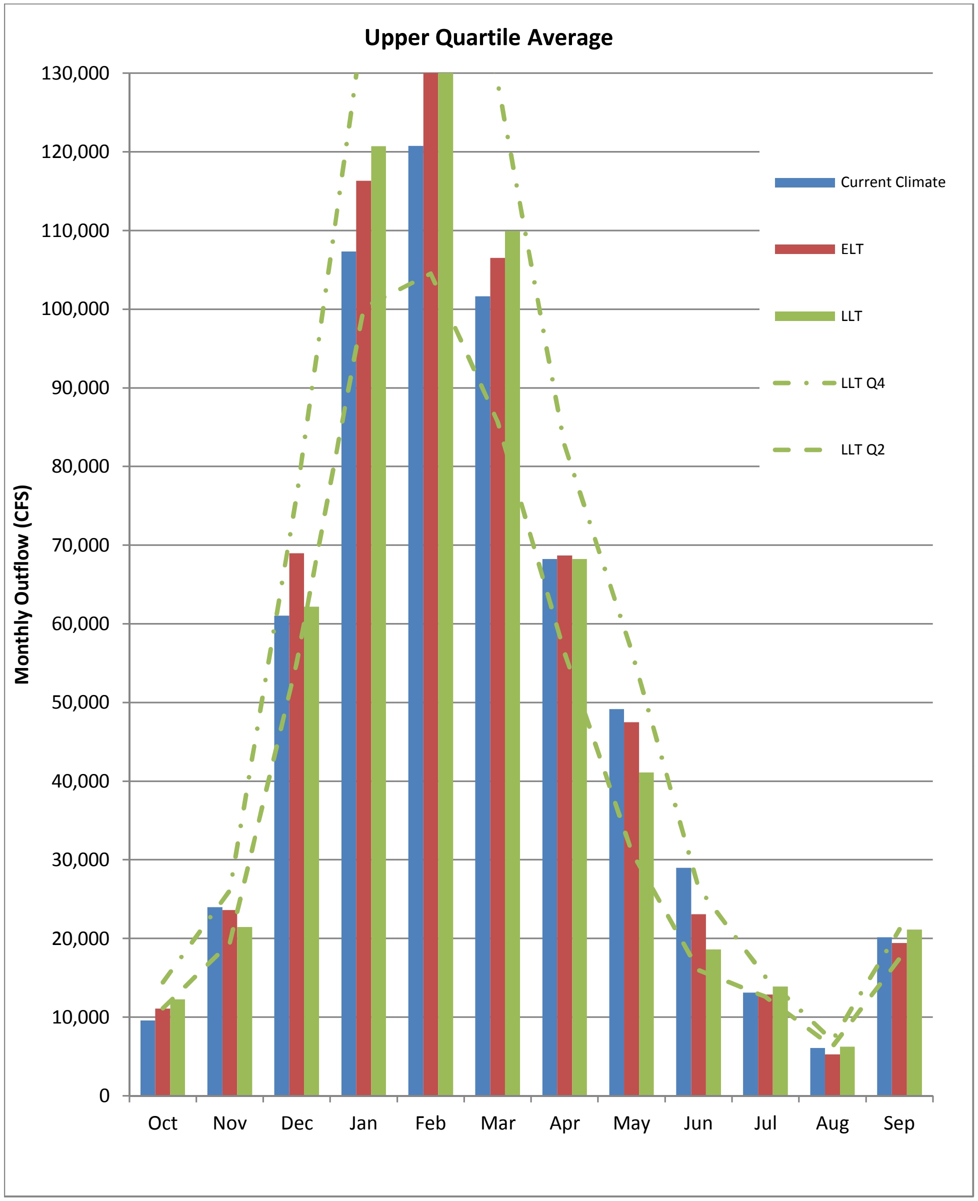


Figure 25B-19.
Sacramento/San Joaquin River Delta, Monthly Outflow (CFS)

Table 25B-20. X2, Monthly Position (KM)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	84.0	0.1 (0%)	-0.3 (0%)
Nov	82.2	0 (0%)	0.5 (1%)
Dec	76.3	0.2 (0%)	1.8 (2%)
Jan	67.3	0.5 (1%)	2.1 (3%)
Feb	60.8	0.8 (1%)	2.7 (4%)
Mar	60.9	0.9 (1%)	2.6 (4%)
Apr	63.7	0.9 (1%)	2.8 (4%)
May	67.8	1.1 (2%)	3.6 (5%)
Jun	74.7	1.1 (2%)	2.8 (4%)
Jul	80.3	-0.1 (0%)	0.4 (0%)
Aug	85.1	-0.1 (0%)	0.6 (1%)
Sep	83.5	0.2 (0%)	0.9 (1%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	84.0	2.4 (3%)	-2.6 (-3%)
Nov	82.2	2.8 (3%)	-2 (-2%)
Dec	76.3	3.4 (5%)	-0.2 (0%)
Jan	67.3	3.9 (6%)	0.6 (1%)
Feb	60.8	4.3 (7%)	1.2 (2%)
Mar	60.9	4.3 (7%)	1.2 (2%)
Apr	63.7	4.6 (7%)	1 (2%)
May	67.8	6 (9%)	1 (1%)
Jun	74.7	4.2 (6%)	0.8 (1%)
Jul	80.3	2.4 (3%)	-1.5 (-2%)
Aug	85.1	1.7 (2%)	-0.6 (-1%)
Sep	83.5	3.1 (4%)	-1.4 (-2%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	73.1	0.5 (1%)	0.7 (1%)
Nov	70.4	0.2 (0%)	1.7 (2%)
Dec	56.5	-0.8 (-1%)	2.9 (5%)
Jan	49.0	0.8 (2%)	3.4 (7%)
Feb	47.9	0.8 (2%)	3.1 (7%)
Mar	48.7	0.8 (2%)	3 (6%)
Apr	51.0	0.6 (1%)	3.4 (7%)
May	54.7	0 (0%)	4.3 (8%)
Jun	61.3	2.5 (4%)	6.6 (11%)
Jul	72.5	1.3 (2%)	2.5 (3%)
Aug	81.3	0.3 (0%)	1.8 (2%)
Sep	73.3	0.4 (1%)	0.6 (1%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	73.1	3.5 (5%)	-0.1 (0%)
Nov	70.4	4.2 (6%)	-0.1 (0%)
Dec	56.5	4.8 (8%)	0.4 (1%)
Jan	49.0	4.8 (10%)	2.6 (5%)
Feb	47.9	4.2 (9%)	2.6 (5%)
Mar	48.7	4.7 (10%)	2.3 (5%)
Apr	51.0	5.1 (10%)	1.9 (4%)
May	54.7	7.2 (13%)	1 (2%)
Jun	61.3	8.5 (14%)	3 (5%)
Jul	72.5	3.6 (5%)	0.7 (1%)
Aug	81.3	2.4 (3%)	0.3 (0%)
Sep	73.3	3.4 (5%)	0.4 (1%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-20. X2, Monthly Position (KM)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	92.6	-0.1 (0%)	-0.8 (-1%)
Nov	91.9	0.5 (0%)	-0.1 (0%)
Dec	90.1	0.3 (0%)	0 (0%)
Jan	83.8	0.1 (0%)	1 (1%)
Feb	76.7	0.9 (1%)	2.2 (3%)
Mar	74.9	1 (1%)	2 (3%)
Apr	76.4	1.1 (1%)	2 (3%)
May	80.7	0.7 (1%)	1.3 (2%)
Jun	84.2	0 (0%)	0.8 (1%)
Jul	86.7	-0.5 (-1%)	0 (0%)
Aug	88.4	0.3 (0%)	0.6 (1%)
Sep	90.9	0.5 (1%)	1.2 (1%)

LLT Sensitivity - Upper Quartile Average[1,3]

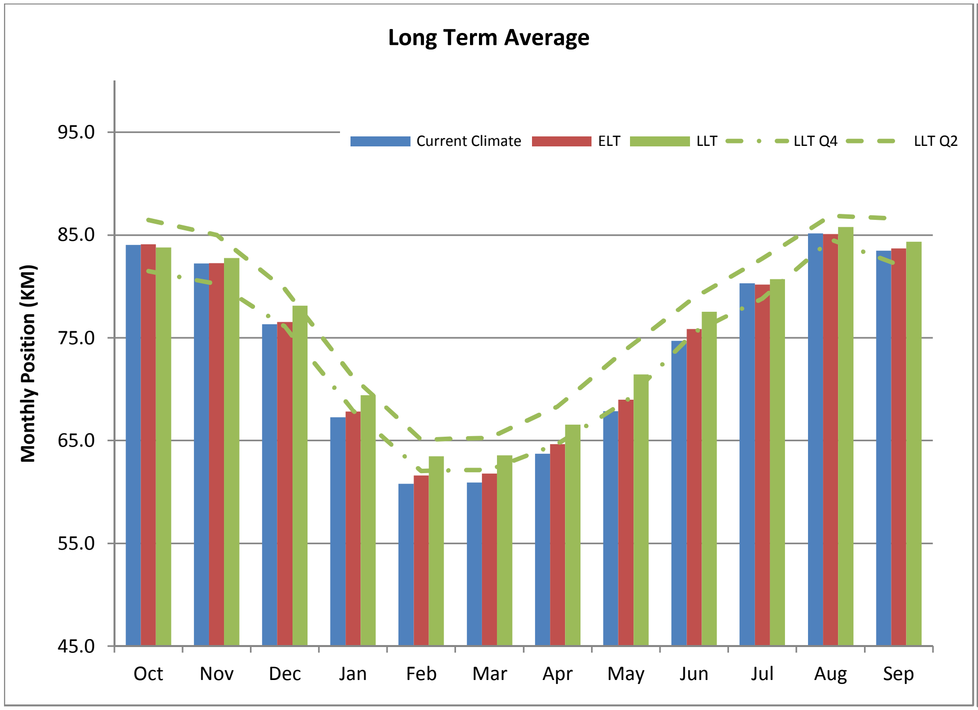
Month	No Action Alternative (KM)	Change from No Action Alternative (KM)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	92.6	0.7 (1%)	-1.7 (-2%)
Nov	91.9	0.9 (1%)	-1.2 (-1%)
Dec	90.1	0.6 (1%)	-1.6 (-2%)
Jan	83.8	1.8 (2%)	-0.1 (0%)
Feb	76.7	3.4 (4%)	0.7 (1%)
Mar	74.9	3 (4%)	0.9 (1%)
Apr	76.4	2.8 (4%)	0.8 (1%)
May	80.7	3.1 (4%)	0.1 (0%)
Jun	84.2	2.3 (3%)	-0.5 (-1%)
Jul	86.7	1.9 (2%)	-1.8 (-2%)
Aug	88.4	1.7 (2%)	-1 (-1%)
Sep	90.9	1.4 (2%)	0.5 (1%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



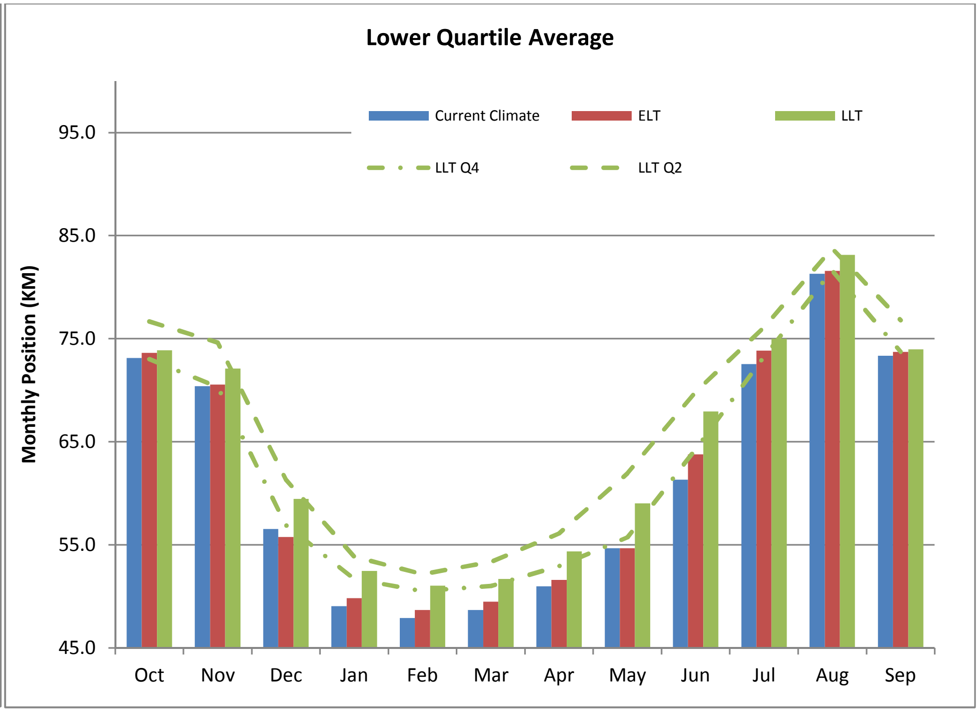


Figure 25B-20.
X2,
Monthly Position (KM)

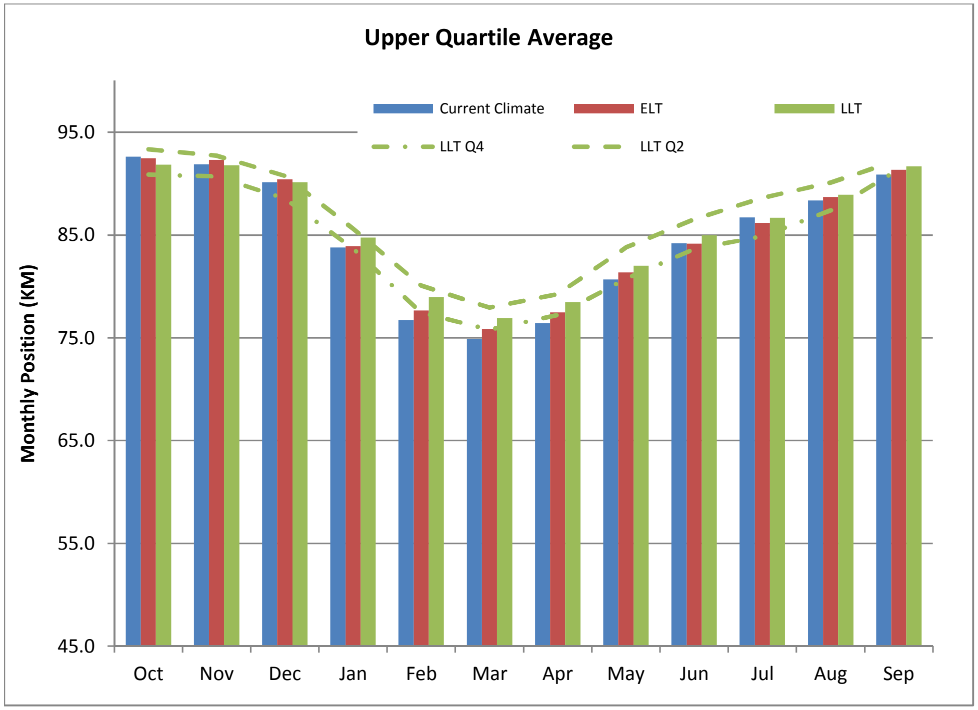


Figure 25B-20.
X2,
Monthly Position (KM)

Table 25B-21. Trinity Lake, End of Month Storage (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	1,305	-81 (-6%)	-192 (-15%)
Nov	1,315	-76 (-6%)	-196 (-15%)
Dec	1,367	-65 (-5%)	-163 (-12%)
Jan	1,431	-51 (-4%)	-116 (-8%)
Feb	1,541	-33 (-2%)	-78 (-5%)
Mar	1,665	-31 (-2%)	-62 (-4%)
Apr	1,816	-39 (-2%)	-77 (-4%)
May	1,810	-57 (-3%)	-123 (-7%)
Jun	1,774	-91 (-5%)	-189 (-11%)
Jul	1,636	-98 (-6%)	-200 (-12%)
Aug	1,495	-103 (-7%)	-208 (-14%)
Sep	1,374	-100 (-7%)	-211 (-15%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	1,305	-469 (-36%)	32 (2%)
Nov	1,315	-470 (-36%)	21 (2%)
Dec	1,367	-440 (-32%)	48 (3%)
Jan	1,431	-404 (-28%)	83 (6%)
Feb	1,541	-384 (-25%)	117 (8%)
Mar	1,665	-386 (-23%)	129 (8%)
Apr	1,816	-427 (-24%)	142 (8%)
May	1,810	-482 (-27%)	132 (7%)
Jun	1,774	-554 (-31%)	75 (4%)
Jul	1,636	-554 (-34%)	67 (4%)
Aug	1,495	-542 (-36%)	56 (4%)
Sep	1,374	-512 (-37%)	40 (3%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	672	-108 (-16%)	-195 (-29%)
Nov	675	-98 (-14%)	-188 (-28%)
Dec	706	-90 (-13%)	-178 (-25%)
Jan	760	-73 (-10%)	-128 (-17%)
Feb	839	-64 (-8%)	-104 (-12%)
Mar	966	-72 (-7%)	-103 (-11%)
Apr	1,086	-82 (-8%)	-122 (-11%)
May	1,075	-104 (-10%)	-171 (-16%)
Jun	1,057	-121 (-11%)	-203 (-19%)
Jul	929	-125 (-13%)	-204 (-22%)
Aug	804	-137 (-17%)	-216 (-27%)
Sep	722	-134 (-19%)	-213 (-30%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	672	-420 (-63%)	113 (17%)
Nov	675	-403 (-60%)	112 (17%)
Dec	706	-391 (-55%)	130 (18%)
Jan	760	-380 (-50%)	160 (21%)
Feb	839	-373 (-44%)	215 (26%)
Mar	966	-409 (-42%)	240 (25%)
Apr	1,086	-454 (-42%)	263 (24%)
May	1,075	-492 (-46%)	234 (22%)
Jun	1,057	-564 (-53%)	182 (17%)
Jul	929	-527 (-57%)	158 (17%)
Aug	804	-490 (-61%)	137 (17%)
Sep	722	-464 (-64%)	116 (16%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-21. Trinity Lake, End of Month Storage (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	1,840	-23 (-1%)	-141 (-8%)
Nov	1,837	-23 (-1%)	-163 (-9%)
Dec	1,847	-15 (-1%)	-80 (-4%)
Jan	1,899	-8 (0%)	-26 (-1%)
Feb	2,009	5 (0%)	10 (0%)
Mar	2,100	4 (0%)	8 (0%)
Apr	2,281	-7 (0%)	-20 (-1%)
May	2,341	-17 (-1%)	-58 (-2%)
Jun	2,345	-63 (-3%)	-158 (-7%)
Jul	2,226	-62 (-3%)	-171 (-8%)
Aug	2,108	-68 (-3%)	-186 (-9%)
Sep	1,949	-61 (-3%)	-188 (-10%)

LLT Sensitivity - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	1,840	-397 (-22%)	-5 (0%)
Nov	1,837	-417 (-23%)	-16 (-1%)
Dec	1,847	-341 (-18%)	1 (0%)
Jan	1,899	-240 (-13%)	16 (1%)
Feb	2,009	-161 (-8%)	12 (1%)
Mar	2,100	-101 (-5%)	11 (1%)
Apr	2,281	-140 (-6%)	19 (1%)
May	2,341	-259 (-11%)	36 (2%)
Jun	2,345	-389 (-17%)	-28 (-1%)
Jul	2,226	-424 (-19%)	-26 (-1%)
Aug	2,108	-462 (-22%)	-37 (-2%)
Sep	1,949	-450 (-23%)	-32 (-2%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%

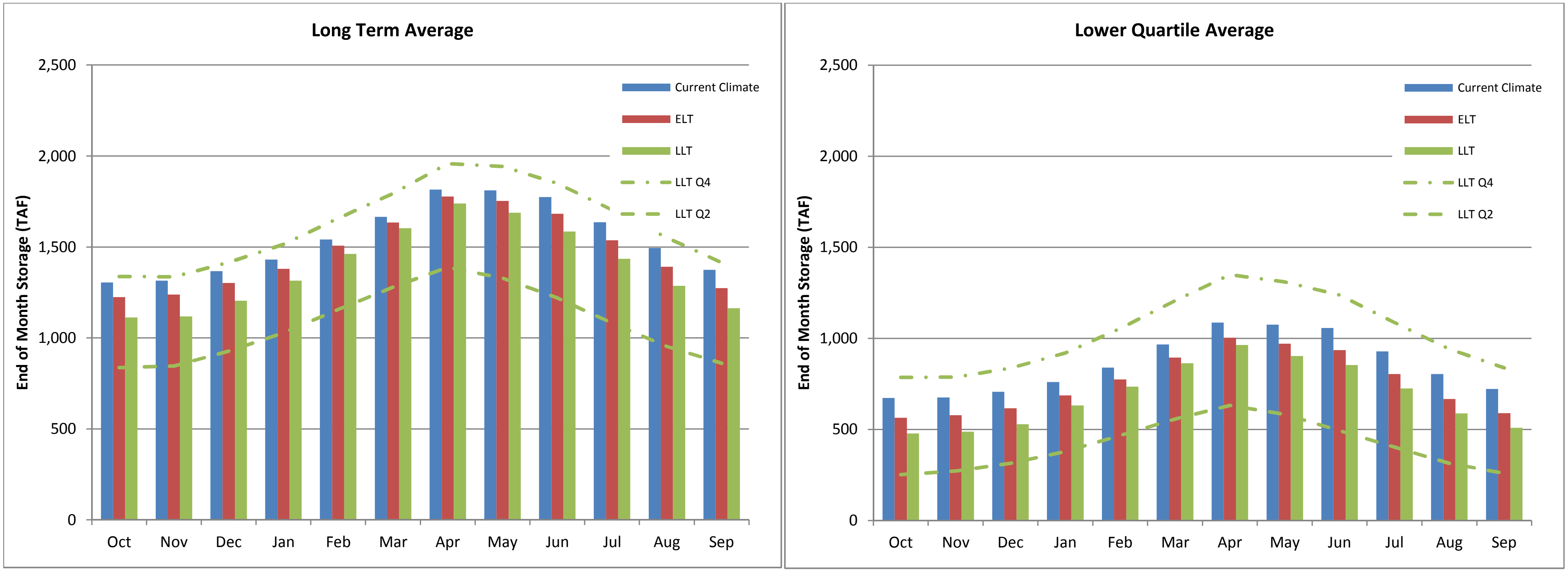


Figure 25B-21.
Trinity Lake,
End of Month Storage (TAF)

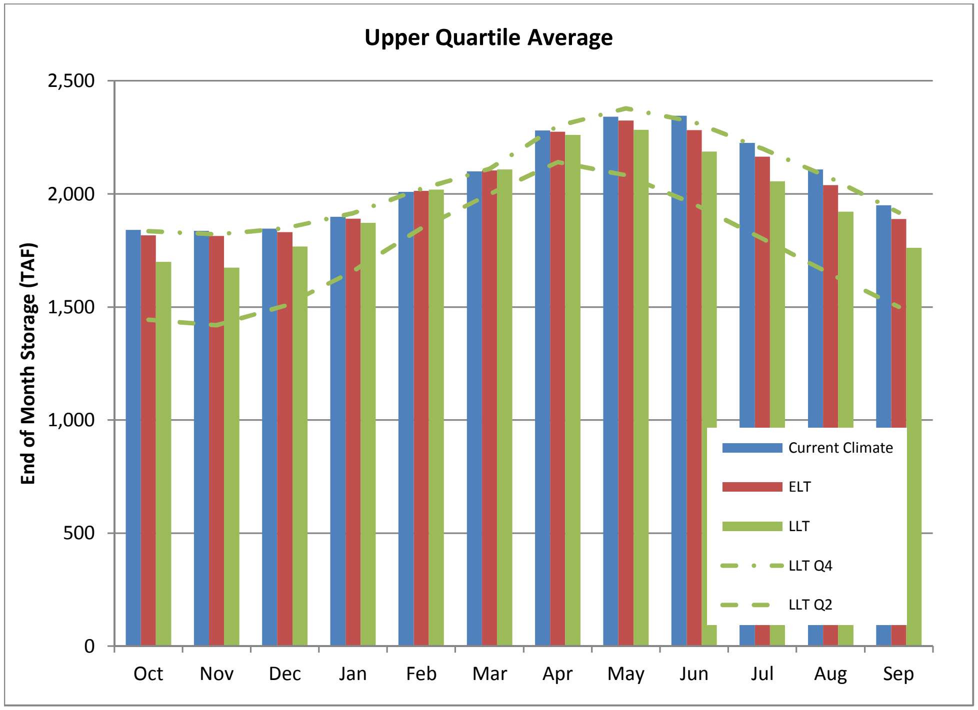


Figure 25B-21.
Trinity Lake,
End of Month Storage (TAF)

Table 25B-22. Shasta Lake, End of Month Storage (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	2,557	-159 (-6%)	-429 (-17%)
Nov	2,547	-141 (-6%)	-404 (-16%)
Dec	2,712	-107 (-4%)	-295 (-11%)
Jan	2,983	-74 (-2%)	-208 (-7%)
Feb	3,261	-54 (-2%)	-132 (-4%)
Mar	3,616	-56 (-2%)	-129 (-4%)
Apr	3,913	-83 (-2%)	-177 (-5%)
May	3,944	-99 (-3%)	-228 (-6%)
Jun	3,634	-132 (-4%)	-308 (-8%)
Jul	3,148	-174 (-6%)	-381 (-12%)
Aug	2,813	-151 (-5%)	-374 (-13%)
Sep	2,630	-157 (-6%)	-385 (-15%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	2,557	-872 (-34%)	-120 (-5%)
Nov	2,547	-816 (-32%)	-121 (-5%)
Dec	2,712	-685 (-25%)	-28 (-1%)
Jan	2,983	-615 (-21%)	64 (2%)
Feb	3,261	-571 (-18%)	139 (4%)
Mar	3,616	-639 (-18%)	190 (5%)
Apr	3,913	-729 (-19%)	193 (5%)
May	3,944	-825 (-21%)	162 (4%)
Jun	3,634	-911 (-25%)	118 (3%)
Jul	3,148	-914 (-29%)	42 (1%)
Aug	2,813	-862 (-31%)	14 (1%)
Sep	2,630	-837 (-32%)	-75 (-3%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	1,455	-195 (-13%)	-456 (-31%)
Nov	1,463	-190 (-13%)	-449 (-31%)
Dec	1,594	-183 (-11%)	-408 (-26%)
Jan	1,952	-163 (-8%)	-389 (-20%)
Feb	2,262	-150 (-7%)	-292 (-13%)
Mar	2,668	-154 (-6%)	-334 (-13%)
Apr	2,846	-203 (-7%)	-403 (-14%)
May	2,769	-254 (-9%)	-490 (-18%)
Jun	2,392	-278 (-12%)	-548 (-23%)
Jul	1,929	-285 (-15%)	-540 (-28%)
Aug	1,609	-225 (-14%)	-466 (-29%)
Sep	1,532	-212 (-14%)	-418 (-27%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	1,455	-872 (-60%)	43 (3%)
Nov	1,463	-837 (-57%)	29 (2%)
Dec	1,594	-818 (-51%)	109 (7%)
Jan	1,952	-942 (-48%)	126 (6%)
Feb	2,262	-975 (-43%)	293 (13%)
Mar	2,668	-1176 (-44%)	316 (12%)
Apr	2,846	-1318 (-46%)	380 (13%)
May	2,769	-1407 (-51%)	340 (12%)
Jun	2,392	-1345 (-56%)	284 (12%)
Jul	1,929	-1143 (-59%)	212 (11%)
Aug	1,609	-941 (-58%)	164 (10%)
Sep	1,532	-893 (-58%)	116 (8%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-22. Shasta Lake, End of Month Storage (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	3,239	-69 (-2%)	-263 (-8%)
Nov	3,194	-33 (-1%)	-203 (-6%)
Dec	3,320	-11 (0%)	-31 (-1%)
Jan	3,586	9 (0%)	0 (0%)
Feb	3,862	11 (0%)	-6 (0%)
Mar	4,198	-13 (0%)	-19 (0%)
Apr	4,502	-23 (-1%)	-39 (-1%)
May	4,552	0 (0%)	0 (0%)
Jun	4,424	-38 (-1%)	-92 (-2%)
Jul	4,026	-132 (-3%)	-274 (-7%)
Aug	3,658	-112 (-3%)	-269 (-7%)
Sep	3,332	-106 (-3%)	-314 (-9%)

LLT Sensitivity - Upper Quartile Average[1,3]

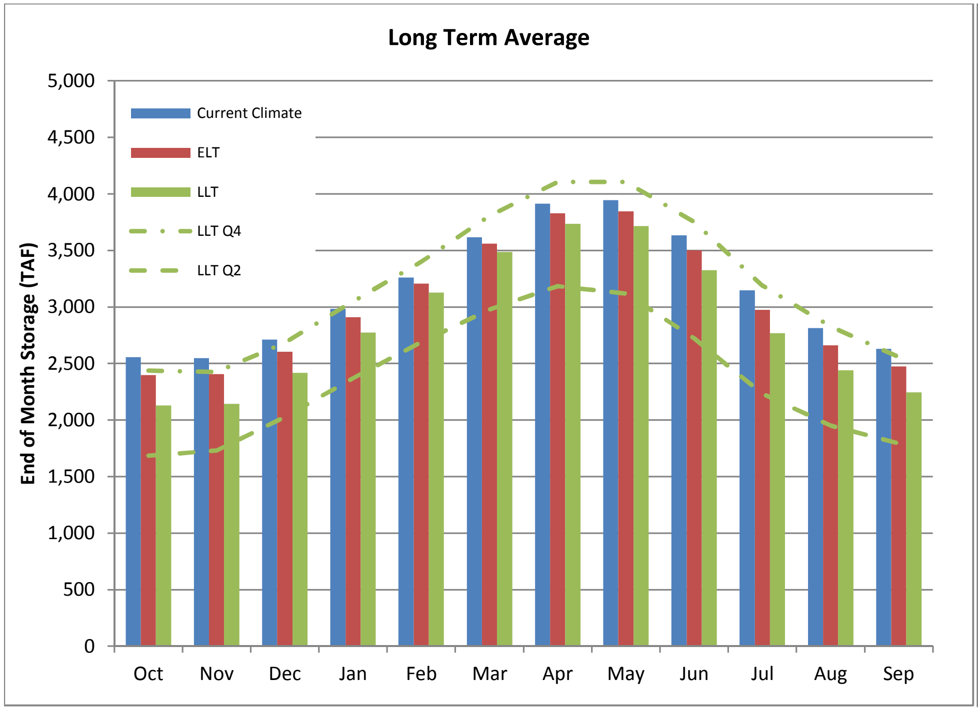
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	3,239	-594 (-18%)	-81 (-3%)
Nov	3,194	-521 (-16%)	-54 (-2%)
Dec	3,320	-263 (-8%)	-8 (0%)
Jan	3,586	-139 (-4%)	40 (1%)
Feb	3,862	-177 (-5%)	81 (2%)
Mar	4,198	-201 (-5%)	90 (2%)
Apr	4,502	-169 (-4%)	49 (1%)
May	4,552	-95 (-2%)	0 (0%)
Jun	4,424	-337 (-8%)	8 (0%)
Jul	4,026	-569 (-14%)	-78 (-2%)
Aug	3,658	-577 (-16%)	-66 (-2%)
Sep	3,332	-582 (-17%)	-89 (-3%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



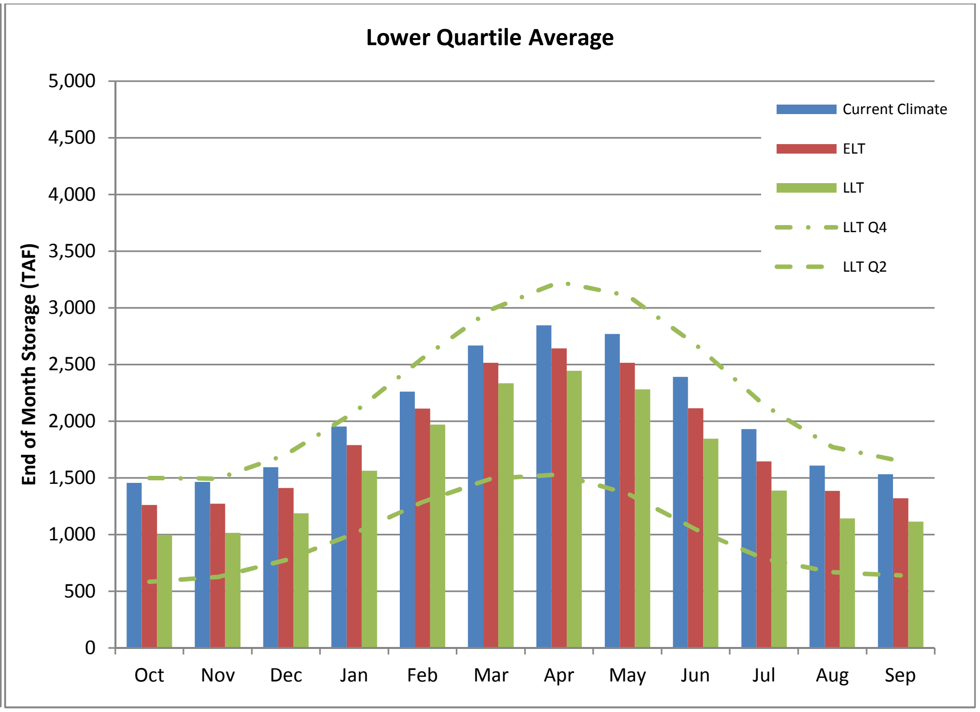


Figure 25B-22.
Shasta Lake,
End of Month Storage (TAF)

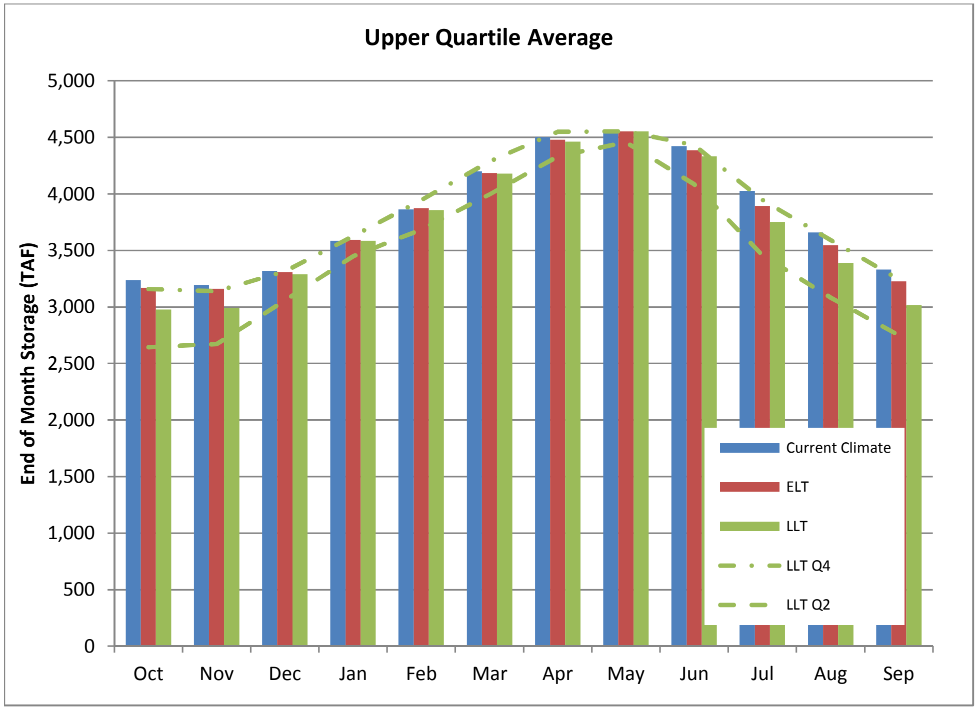


Figure 25B-22.
Shasta Lake,
End of Month Storage (TAF)

Table 25B-23. Lake Oroville, End of Month Storage (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	1,767	-211 (-12%)	-421 (-24%)
Nov	1,826	-197 (-11%)	-413 (-23%)
Dec	1,968	-136 (-7%)	-309 (-16%)
Jan	2,170	-89 (-4%)	-199 (-9%)
Feb	2,381	-40 (-2%)	-102 (-4%)
Mar	2,591	-40 (-2%)	-95 (-4%)
Apr	2,864	-53 (-2%)	-124 (-4%)
May	3,002	-94 (-3%)	-208 (-7%)
Jun	2,885	-131 (-5%)	-308 (-11%)
Jul	2,399	-174 (-7%)	-375 (-16%)
Aug	2,098	-211 (-10%)	-437 (-21%)
Sep	1,831	-211 (-12%)	-426 (-23%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	1,767	-604 (-34%)	-175 (-10%)
Nov	1,826	-597 (-33%)	-160 (-9%)
Dec	1,968	-505 (-26%)	-81 (-4%)
Jan	2,170	-391 (-18%)	4 (0%)
Feb	2,381	-317 (-13%)	58 (2%)
Mar	2,591	-320 (-12%)	58 (2%)
Apr	2,864	-394 (-14%)	78 (3%)
May	3,002	-521 (-17%)	51 (2%)
Jun	2,885	-655 (-23%)	3 (0%)
Jul	2,399	-667 (-28%)	-70 (-3%)
Aug	2,098	-670 (-32%)	-126 (-6%)
Sep	1,831	-606 (-33%)	-183 (-10%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	991	-104 (-11%)	-205 (-21%)
Nov	1,029	-113 (-11%)	-209 (-20%)
Dec	1,125	-76 (-7%)	-169 (-15%)
Jan	1,348	-75 (-6%)	-194 (-14%)
Feb	1,558	-55 (-4%)	-144 (-9%)
Mar	1,803	-73 (-4%)	-148 (-8%)
Apr	1,957	-100 (-5%)	-186 (-9%)
May	2,003	-150 (-8%)	-295 (-15%)
Jun	1,807	-168 (-9%)	-313 (-17%)
Jul	1,326	-137 (-10%)	-263 (-20%)
Aug	1,083	-123 (-11%)	-239 (-22%)
Sep	1,011	-97 (-10%)	-205 (-20%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	991	-322 (-32%)	-52 (-5%)
Nov	1,029	-355 (-34%)	-46 (-4%)
Dec	1,125	-363 (-32%)	5 (0%)
Jan	1,348	-403 (-30%)	2 (0%)
Feb	1,558	-434 (-28%)	58 (4%)
Mar	1,803	-541 (-30%)	116 (6%)
Apr	1,957	-653 (-33%)	118 (6%)
May	2,003	-759 (-38%)	73 (4%)
Jun	1,807	-746 (-41%)	59 (3%)
Jul	1,326	-494 (-37%)	-45 (-3%)
Aug	1,083	-345 (-32%)	-72 (-7%)
Sep	1,011	-311 (-31%)	-64 (-6%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-23. Lake Oroville, End of Month Storage (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	2,611	-326 (-12%)	-610 (-23%)
Nov	2,684	-278 (-10%)	-571 (-21%)
Dec	2,817	-135 (-5%)	-292 (-10%)
Jan	2,855	-16 (-1%)	-34 (-1%)
Feb	2,932	-2 (0%)	10 (0%)
Mar	3,067	-16 (-1%)	-24 (-1%)
Apr	3,372	-8 (0%)	-15 (0%)
May	3,538	0 (0%)	0 (0%)
Jun	3,538	-5 (0%)	-115 (-3%)
Jul	3,252	-157 (-5%)	-368 (-11%)
Aug	3,108	-315 (-10%)	-605 (-19%)
Sep	2,695	-338 (-13%)	-645 (-24%)

LLT Sensitivity - Upper Quartile Average[1,3]

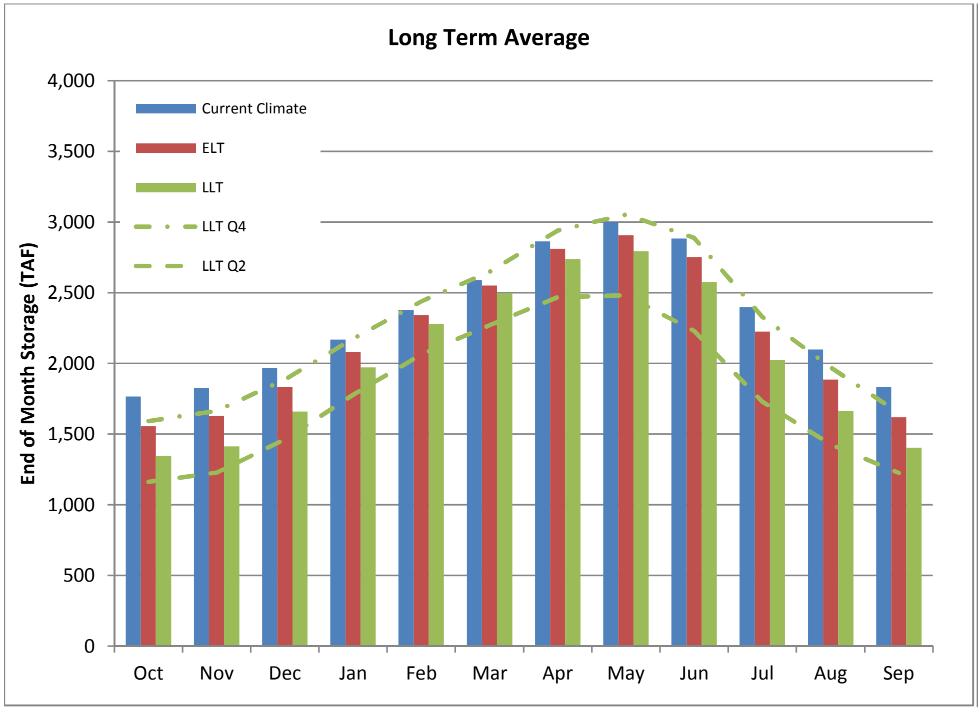
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	2,611	-890 (-34%)	-204 (-8%)
Nov	2,684	-830 (-31%)	-170 (-6%)
Dec	2,817	-503 (-18%)	-31 (-1%)
Jan	2,855	-72 (-3%)	28 (1%)
Feb	2,932	-9 (0%)	48 (2%)
Mar	3,067	-40 (-1%)	-4 (0%)
Apr	3,372	-42 (-1%)	19 (1%)
May	3,538	-26 (-1%)	0 (0%)
Jun	3,538	-276 (-8%)	-12 (0%)
Jul	3,252	-599 (-18%)	-127 (-4%)
Aug	3,108	-896 (-29%)	-263 (-8%)
Sep	2,695	-881 (-33%)	-279 (-10%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



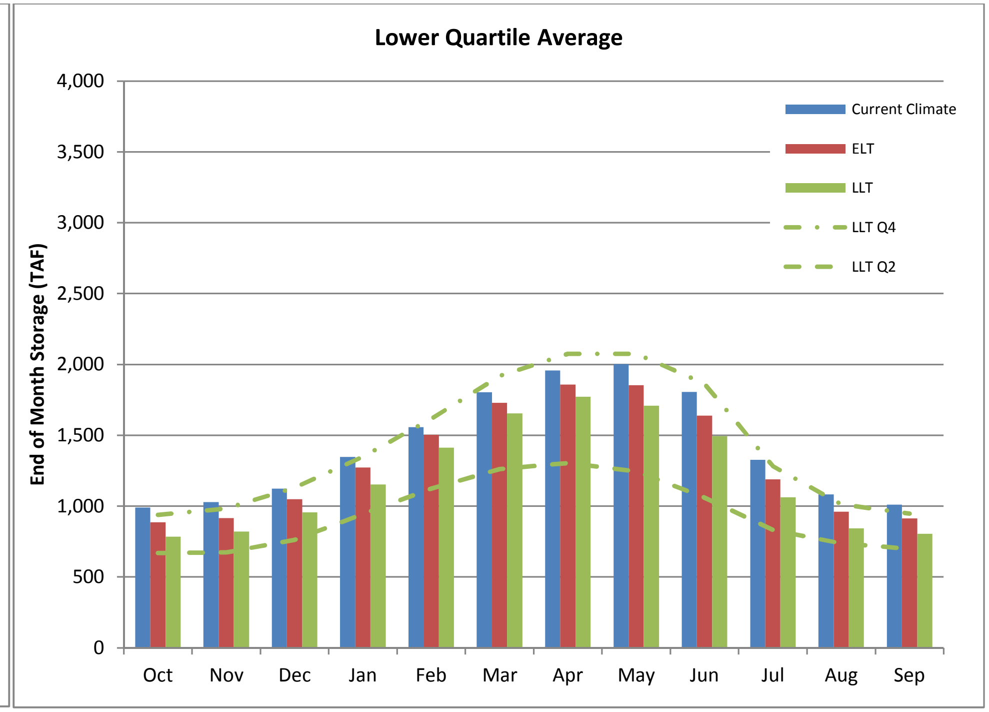


Figure 25B-23.
Lake Oroville,
End of Month Storage (TAF)

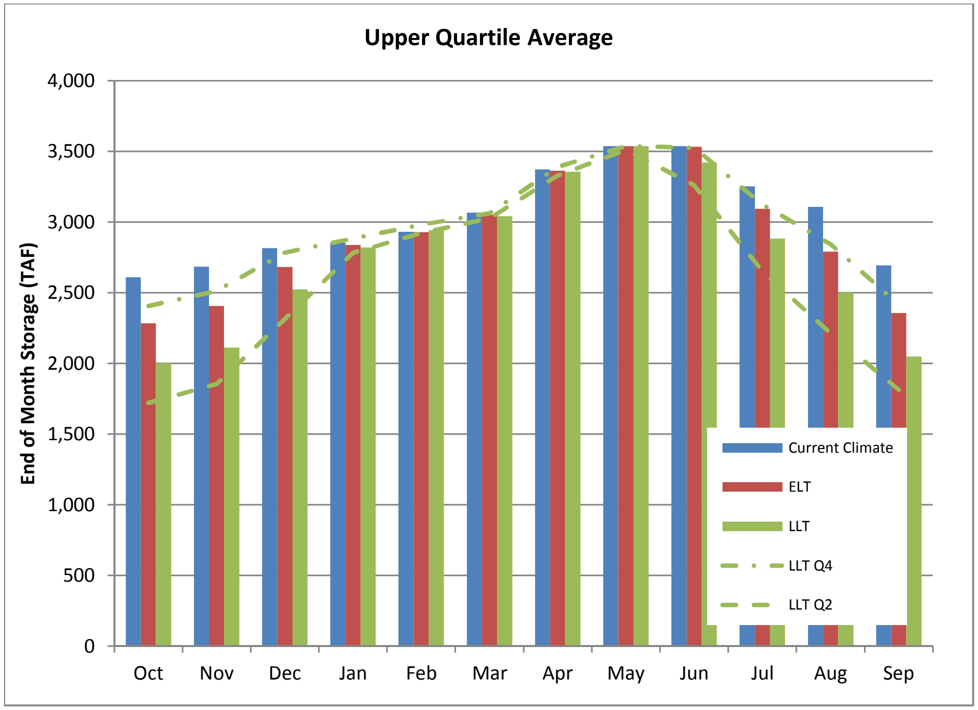


Figure 25B-23.
Lake Oroville,
End of Month Storage (TAF)

Table 25B-24. Folsom Lake, End of Month Storage (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (ELT)	Change from No Action Alternative (TAF): No Action Alternative (LLT)
Oct	477	-53 (-11%)	-123 (-26%)
Nov	435	-32 (-7%)	-94 (-22%)
Dec	448	-18 (-4%)	-59 (-13%)
Jan	466	-12 (-3%)	-34 (-7%)
Feb	487	-3 (-1%)	-20 (-4%)
Mar	594	-4 (-1%)	-16 (-3%)
Apr	719	-6 (-1%)	-22 (-3%)
May	840	-18 (-2%)	-51 (-6%)
Jun	810	-36 (-4%)	-98 (-12%)
Jul	666	-65 (-10%)	-159 (-24%)
Aug	582	-58 (-10%)	-143 (-25%)
Sep	496	-48 (-10%)	-116 (-23%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q2)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q4)
Oct	477	-193 (-40%)	-62 (-13%)
Nov	435	-139 (-32%)	-29 (-7%)
Dec	448	-102 (-23%)	1 (0%)
Jan	466	-78 (-17%)	4 (1%)
Feb	487	-66 (-14%)	9 (2%)
Mar	594	-63 (-11%)	13 (2%)
Apr	719	-84 (-12%)	16 (2%)
May	840	-151 (-18%)	12 (1%)
Jun	810	-237 (-29%)	-10 (-1%)
Jul	666	-255 (-38%)	-68 (-10%)
Aug	582	-236 (-41%)	-57 (-10%)
Sep	496	-186 (-38%)	-55 (-11%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (ELT)	Change from No Action Alternative (TAF): No Action Alternative (LLT)
Oct	259	-43 (-16%)	-94 (-36%)
Nov	257	-36 (-14%)	-80 (-31%)
Dec	279	-28 (-10%)	-72 (-26%)
Jan	307	-27 (-9%)	-67 (-22%)
Feb	351	-15 (-4%)	-55 (-16%)
Mar	445	-11 (-2%)	-46 (-10%)
Apr	503	-15 (-3%)	-57 (-11%)
May	533	-39 (-7%)	-94 (-18%)
Jun	476	-51 (-11%)	-104 (-22%)
Jul	360	-60 (-17%)	-146 (-41%)
Aug	308	-63 (-20%)	-122 (-40%)
Sep	283	-53 (-19%)	-109 (-39%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q2)	Change from No Action Alternative (TAF): No Action Alternative (LLT Q4)
Oct	259	-156 (-60%)	-23 (-9%)
Nov	257	-144 (-56%)	-4 (-2%)
Dec	279	-133 (-48%)	9 (3%)
Jan	307	-141 (-46%)	-9 (-3%)
Feb	351	-137 (-39%)	-2 (-1%)
Mar	445	-170 (-38%)	30 (7%)
Apr	503	-200 (-40%)	53 (11%)
May	533	-250 (-47%)	44 (8%)
Jun	476	-267 (-56%)	30 (6%)
Jul	360	-212 (-59%)	-60 (-17%)
Aug	308	-191 (-62%)	-39 (-13%)
Sep	283	-168 (-60%)	-40 (-14%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-24. Folsom Lake, End of Month Storage (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	652	-36 (-6%)	-101 (-15%)
Nov	559	-18 (-3%)	-72 (-13%)
Dec	573	1 (0%)	-9 (-2%)
Jan	574	-1 (0%)	0 (0%)
Feb	573	1 (0%)	0 (0%)
Mar	670	0 (0%)	0 (0%)
Apr	800	0 (0%)	0 (0%)
May	975	0 (0%)	0 (0%)
Jun	975	0 (0%)	-7 (-1%)
Jul	934	-48 (-5%)	-139 (-15%)
Aug	800	-22 (-3%)	-107 (-13%)
Sep	648	-26 (-4%)	-75 (-12%)

LLT Sensitivity - Upper Quartile Average[1,3]

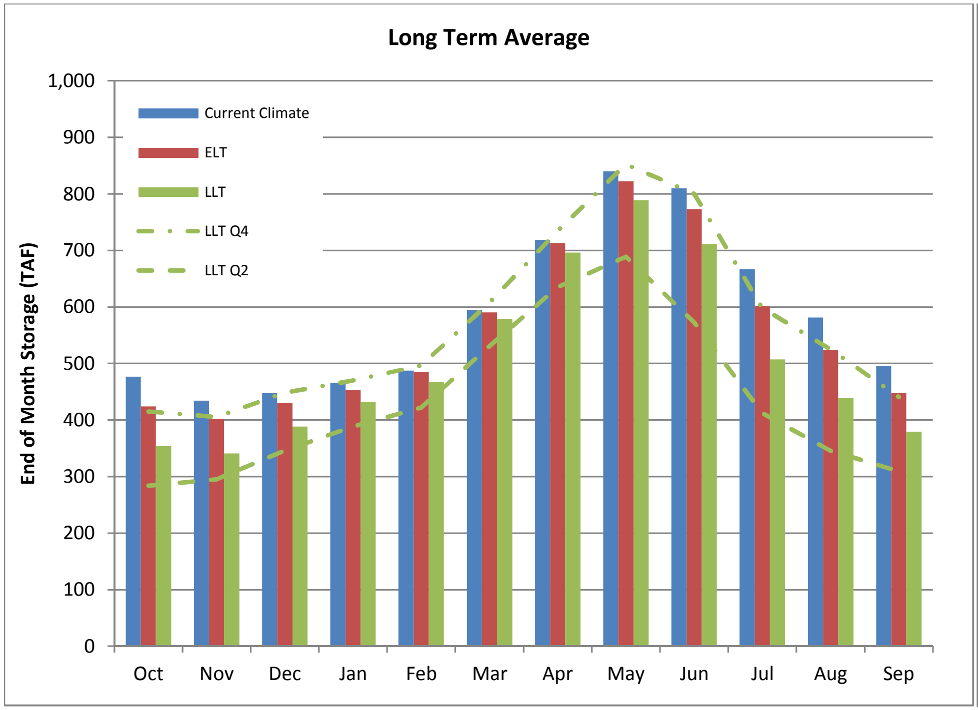
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	652	-190 (-29%)	-40 (-6%)
Nov	559	-100 (-18%)	-23 (-4%)
Dec	573	-21 (-4%)	2 (0%)
Jan	574	-3 (-1%)	1 (0%)
Feb	573	-5 (-1%)	2 (0%)
Mar	670	-3 (-1%)	1 (0%)
Apr	800	0 (0%)	0 (0%)
May	975	-8 (-1%)	0 (0%)
Jun	975	-92 (-9%)	0 (0%)
Jul	934	-250 (-27%)	-56 (-6%)
Aug	800	-223 (-28%)	-31 (-4%)
Sep	648	-157 (-24%)	-28 (-4%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



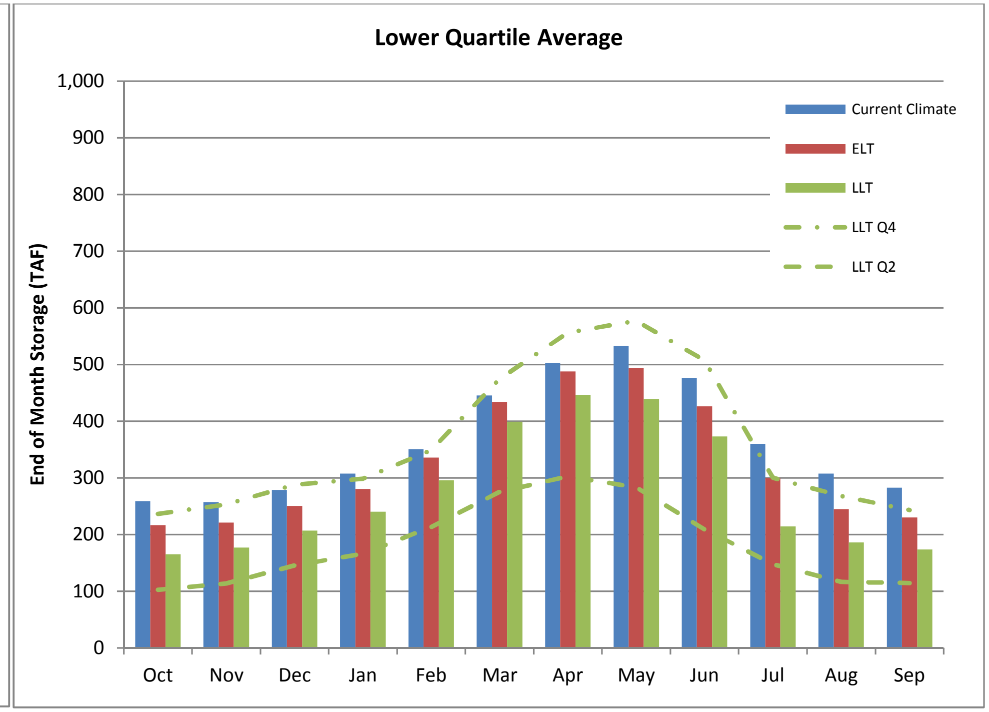


Figure 25B-24.
Folsom Lake,
End of Month Storage (TAF)

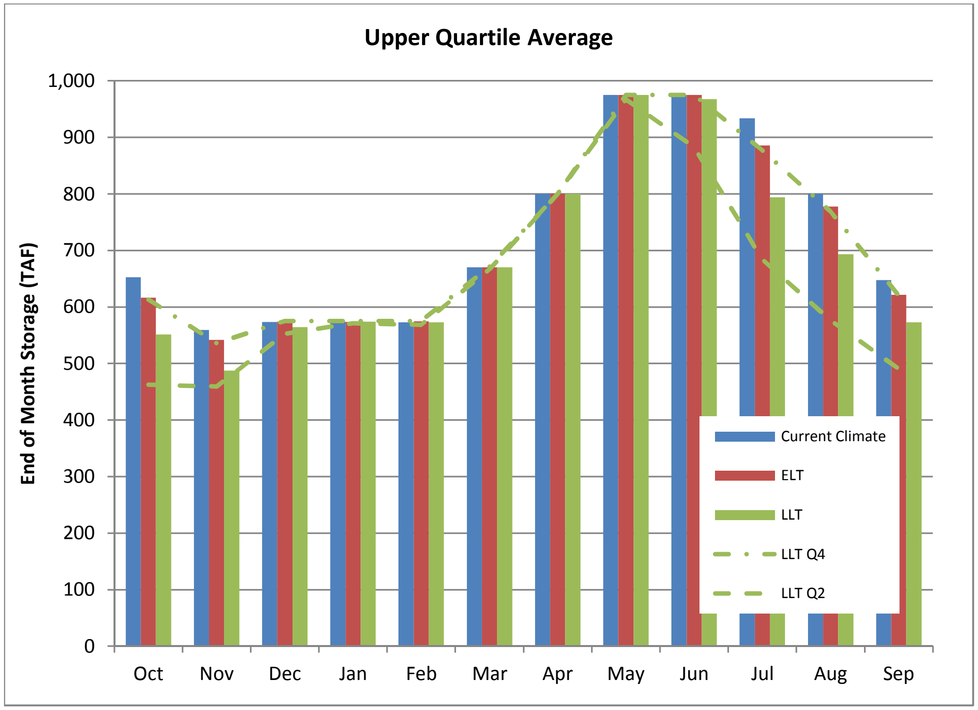


Figure 25B-24.
Folsom Lake,
End of Month Storage (TAF)

Table 25B-25. Total Trinity Lake, Shasta Lake, Lake Oroville and Folsom Lake, End of Month Storage (TAF)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	6,107	-503 (-8%)	-1164 (-19%)
Nov	6,123	-446 (-7%)	-1108 (-18%)
Dec	6,495	-325 (-5%)	-826 (-13%)
Jan	7,050	-227 (-3%)	-557 (-8%)
Feb	7,669	-130 (-2%)	-332 (-4%)
Mar	8,467	-131 (-2%)	-301 (-4%)
Apr	9,311	-180 (-2%)	-400 (-4%)
May	9,596	-268 (-3%)	-611 (-6%)
Jun	9,102	-391 (-4%)	-903 (-10%)
Jul	7,849	-511 (-7%)	-1115 (-14%)
Aug	6,988	-524 (-7%)	-1162 (-17%)
Sep	6,331	-516 (-8%)	-1138 (-18%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	6,107	-2137 (-35%)	-325 (-5%)
Nov	6,123	-2023 (-33%)	-290 (-5%)
Dec	6,495	-1732 (-27%)	-60 (-1%)
Jan	7,050	-1487 (-21%)	154 (2%)
Feb	7,669	-1339 (-17%)	322 (4%)
Mar	8,467	-1408 (-17%)	391 (5%)
Apr	9,311	-1634 (-18%)	429 (5%)
May	9,596	-1980 (-21%)	358 (4%)
Jun	9,102	-2357 (-26%)	187 (2%)
Jul	7,849	-2391 (-30%)	-29 (0%)
Aug	6,988	-2309 (-33%)	-112 (-2%)
Sep	6,331	-2141 (-34%)	-273 (-4%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	3,533	-448 (-13%)	-983 (-28%)
Nov	3,577	-423 (-12%)	-944 (-26%)
Dec	3,839	-358 (-9%)	-830 (-22%)
Jan	4,530	-323 (-7%)	-759 (-17%)
Feb	5,179	-281 (-5%)	-594 (-11%)
Mar	6,104	-309 (-5%)	-672 (-11%)
Apr	6,644	-382 (-6%)	-781 (-12%)
May	6,657	-527 (-8%)	-1077 (-16%)
Jun	5,979	-616 (-10%)	-1202 (-20%)
Jul	4,773	-606 (-13%)	-1147 (-24%)
Aug	4,016	-548 (-14%)	-1077 (-27%)
Sep	3,732	-496 (-13%)	-968 (-26%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	3,533	-1884 (-53%)	20 (1%)
Nov	3,577	-1819 (-51%)	51 (1%)
Dec	3,839	-1745 (-45%)	287 (7%)
Jan	4,530	-1875 (-41%)	284 (6%)
Feb	5,179	-1913 (-37%)	567 (11%)
Mar	6,104	-2260 (-37%)	764 (13%)
Apr	6,644	-2587 (-39%)	759 (11%)
May	6,657	-2931 (-44%)	625 (9%)
Jun	5,979	-2979 (-50%)	488 (8%)
Jul	4,773	-2480 (-52%)	232 (5%)
Aug	4,016	-2123 (-53%)	154 (4%)
Sep	3,732	-1958 (-52%)	107 (3%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-25. Total Trinity Lake, Shasta Lake, Lake Oroville and Folsom Lake, End of Month Storage (TAF)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	8,233	-488 (-6%)	-1154 (-14%)
Nov	8,050	-362 (-5%)	-985 (-12%)
Dec	8,374	-169 (-2%)	-452 (-5%)
Jan	8,701	-75 (-1%)	-144 (-2%)
Feb	9,181	-5 (0%)	-48 (-1%)
Mar	9,841	-1 (0%)	-31 (0%)
Apr	10,847	-32 (0%)	-89 (-1%)
May	11,395	-36 (0%)	-104 (-1%)
Jun	11,238	-128 (-1%)	-433 (-4%)
Jul	10,355	-391 (-4%)	-958 (-9%)
Aug	9,602	-500 (-5%)	-1152 (-12%)
Sep	8,528	-533 (-6%)	-1259 (-15%)

LLT Sensitivity - Upper Quartile Average[1,3]

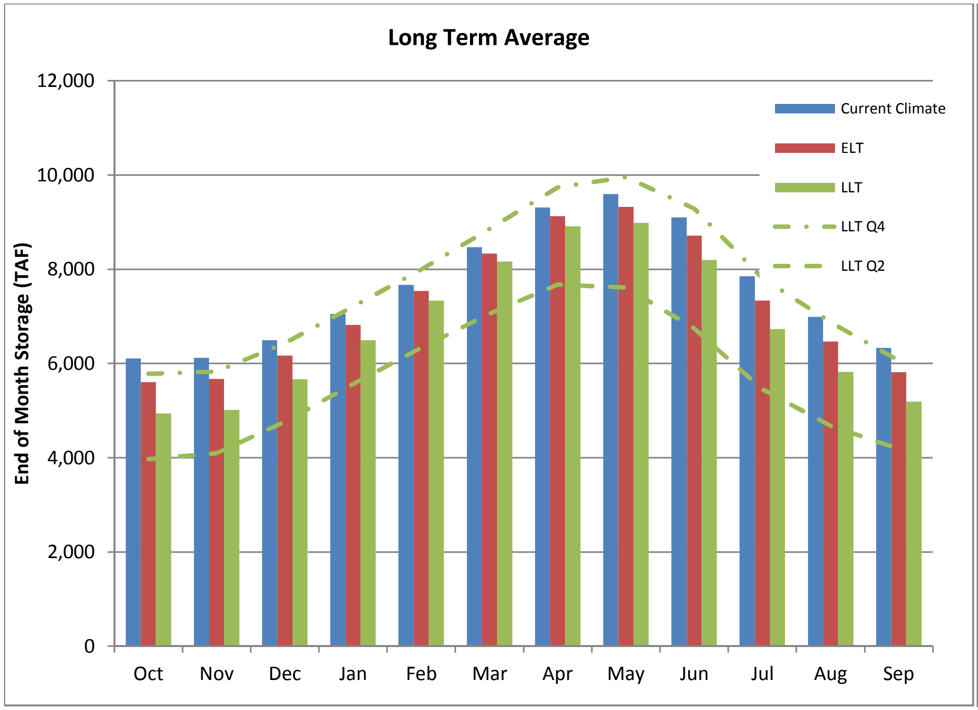
Month	No Action Alternative (TAF)	Change from No Action Alternative (TAF)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	8,233	-2123 (-26%)	-326 (-4%)
Nov	8,050	-1826 (-23%)	-178 (-2%)
Dec	8,374	-1217 (-15%)	48 (1%)
Jan	8,701	-519 (-6%)	113 (1%)
Feb	9,181	-451 (-5%)	156 (2%)
Mar	9,841	-409 (-4%)	140 (1%)
Apr	10,847	-405 (-4%)	114 (1%)
May	11,395	-526 (-5%)	41 (0%)
Jun	11,238	-1192 (-11%)	-47 (0%)
Jul	10,355	-1908 (-18%)	-260 (-3%)
Aug	9,602	-2190 (-23%)	-366 (-4%)
Sep	8,528	-2122 (-25%)	-405 (-5%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%



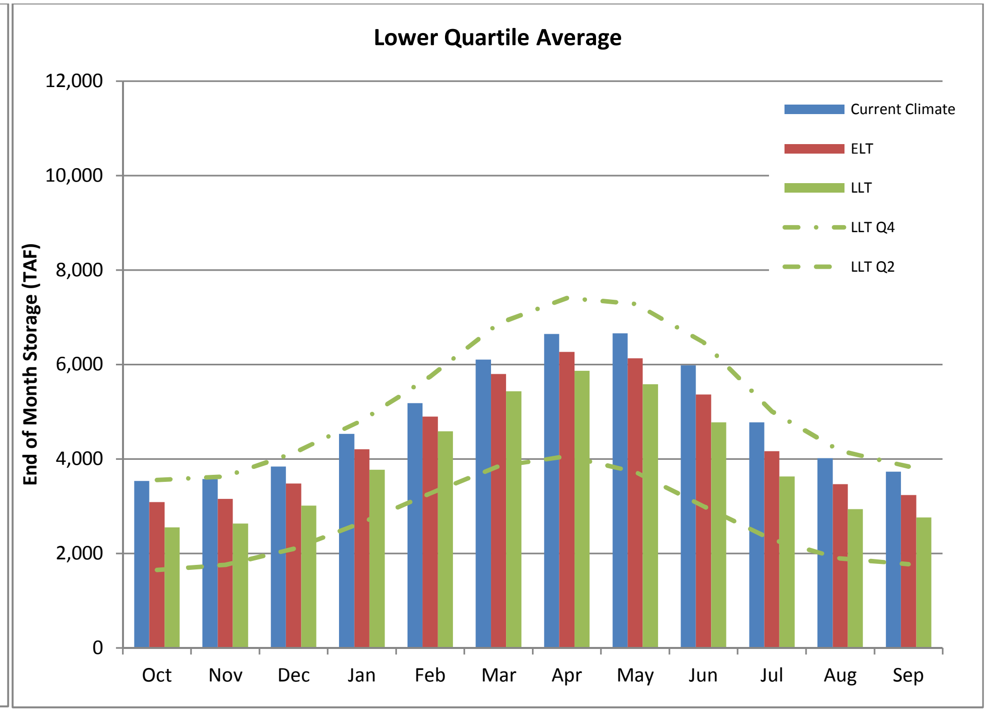


Figure 25B-25.
Total Trinity Lake, Shasta Lake, Lake Oroville and Folsom Lake,
End of Month Storage (TAF)

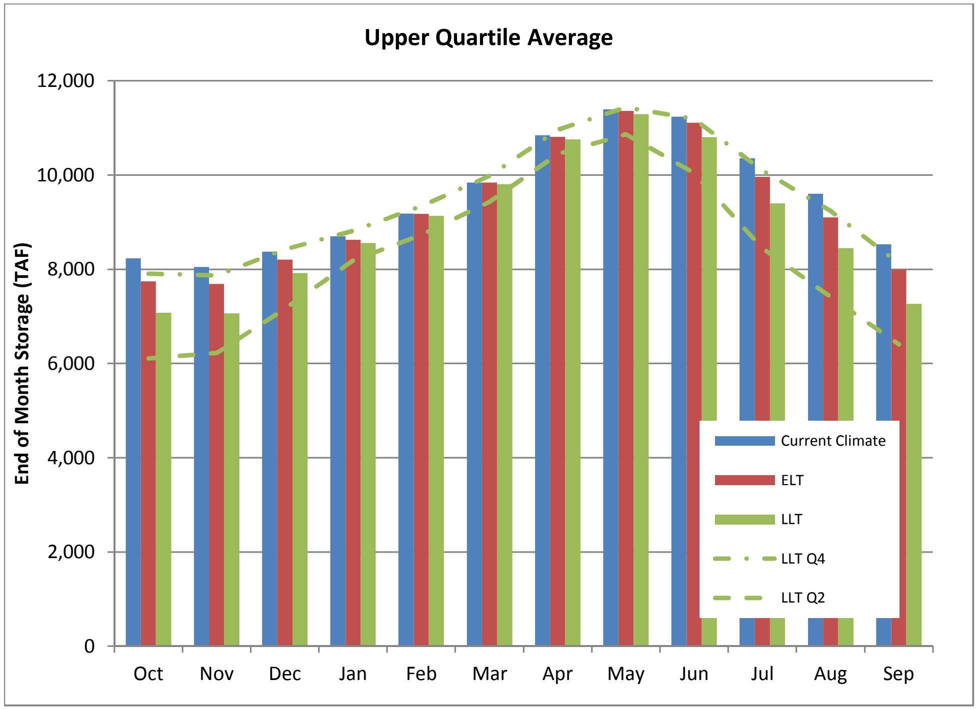


Figure 25B-25.
Total Trinity Lake, Shasta Lake, Lake Oroville and Folsom Lake,
End of Month Storage (TAF)

Table 25B-26. Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) , Monthly Diversion (CFS)

ELT and LLT Trend - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS): No Action Alternative (ELT)	Change from No Action Alternative (CFS): No Action Alternative (LLT)
Oct	6,735	-807 (-12%)	-1773 (-26%)
Nov	6,772	-50 (-1%)	-435 (-6%)
Dec	9,003	-167 (-2%)	-744 (-8%)
Jan	6,607	68 (1%)	-2 (0%)
Feb	7,090	55 (1%)	-284 (-4%)
Mar	6,641	-44 (-1%)	-237 (-4%)
Apr	2,103	67 (3%)	126 (6%)
May	2,223	84 (4%)	88 (4%)
Jun	4,939	-357 (-7%)	-879 (-18%)
Jul	10,439	-840 (-8%)	-1737 (-17%)
Aug	9,862	-462 (-5%)	-734 (-7%)
Sep	8,678	-354 (-4%)	-1015 (-12%)
Annual (TAF/Yr)	4,902	-171 (-3%)	-463 (-9%)

LLT Sensitivity - Long Term Average[1,2]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS): No Action Alternative (LLT Q2)	Change from No Action Alternative (CFS): No Action Alternative (LLT Q4)
Oct	6,735	-2391 (-36%)	-1117 (-17%)
Nov	6,772	-1190 (-18%)	37 (1%)
Dec	9,003	-1273 (-14%)	-87 (-1%)
Jan	6,607	-584 (-9%)	355 (5%)
Feb	7,090	-877 (-12%)	614 (9%)
Mar	6,641	-1078 (-16%)	492 (7%)
Apr	2,103	144 (7%)	238 (11%)
May	2,223	19 (1%)	168 (8%)
Jun	4,939	-1659 (-34%)	-52 (-1%)
Jul	10,439	-3132 (-30%)	-1004 (-10%)
Aug	9,862	-2752 (-28%)	325 (3%)
Sep	8,678	-1941 (-22%)	482 (6%)
Annual (TAF/Yr)	4,902	-1014 (-21%)	23 (0%)

ELT and LLT Trend - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS): No Action Alternative (ELT)	Change from No Action Alternative (CFS): No Action Alternative (LLT)
Oct	4,545	-603 (-13%)	-1782 (-39%)
Nov	3,628	611 (17%)	-94 (-3%)
Dec	6,261	-309 (-5%)	-1486 (-24%)
Jan	4,054	25 (1%)	234 (6%)
Feb	3,880	-115 (-3%)	-642 (-17%)
Mar	2,986	-125 (-4%)	-601 (-20%)
Apr	1,369	-15 (-1%)	-62 (-4%)
May	1,441	-22 (-2%)	-8 (-1%)
Jun	1,999	-230 (-12%)	-429 (-21%)
Jul	7,686	-1693 (-22%)	-3382 (-44%)
Aug	4,905	-731 (-15%)	-687 (-14%)
Sep	5,106	-473 (-9%)	-741 (-15%)
Annual (TAF/Yr)	3,417	-187 (-5%)	-498 (-15%)

LLT Sensitivity - Lower Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS): No Action Alternative (LLT Q2)	Change from No Action Alternative (CFS): No Action Alternative (LLT Q4)
Oct	4,545	-2155 (-47%)	-1363 (-30%)
Nov	3,628	-1382 (-38%)	411 (11%)
Dec	6,261	-2442 (-39%)	-558 (-9%)
Jan	4,054	-610 (-15%)	158 (4%)
Feb	3,880	-1222 (-31%)	-97 (-3%)
Mar	2,986	-1156 (-39%)	-41 (-1%)
Apr	1,369	-294 (-22%)	21 (2%)
May	1,441	-303 (-21%)	7 (0%)
Jun	1,999	-743 (-37%)	-124 (-6%)
Jul	7,686	-5355 (-70%)	-1357 (-18%)
Aug	4,905	-3098 (-63%)	1119 (23%)
Sep	5,106	-1138 (-22%)	352 (7%)
Annual (TAF/Yr)	3,417	-1159 (-34%)	10 (0%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Lower Quartile Average is the average of values within the 100% - 75% probability exceedence range

Note: Percentage change not shown if in excess of 500%

Table 25B-26. Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) , Monthly Diversion (CFS)

ELT and LLT Trend - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (ELT)	No Action Alternative (LLT)
Oct	9,404	-1204 (-13%)	-2450 (-26%)
Nov	10,665	-491 (-5%)	-491 (-5%)
Dec	11,681	-33 (0%)	-265 (-2%)
Jan	9,430	162 (2%)	-129 (-1%)
Feb	10,634	147 (1%)	-114 (-1%)
Mar	10,336	187 (2%)	278 (3%)
Apr	3,524	197 (6%)	264 (7%)
May	4,195	211 (5%)	137 (3%)
Jun	8,966	-813 (-9%)	-1807 (-20%)
Jul	11,613	-44 (0%)	-117 (-1%)
Aug	11,780	0 (0%)	-2 (0%)
Sep	11,240	-47 (0%)	-171 (-2%)
Annual (TAF/Yr)	6,164	-114 (-2%)	-396 (-6%)

LLT Sensitivity - Upper Quartile Average[1,3]

Month	No Action Alternative (CFS)	Change from No Action Alternative (CFS)	
		No Action Alternative (LLT Q2)	No Action Alternative (LLT Q4)
Oct	9,404	-3057 (-33%)	-1236 (-13%)
Nov	10,665	-1201 (-11%)	-123 (-1%)
Dec	11,681	-359 (-3%)	75 (1%)
Jan	9,430	-771 (-8%)	1024 (11%)
Feb	10,634	-993 (-9%)	1555 (15%)
Mar	10,336	-1194 (-12%)	1059 (10%)
Apr	3,524	402 (11%)	911 (26%)
May	4,195	-87 (-2%)	612 (15%)
Jun	8,966	-3071 (-34%)	-122 (-1%)
Jul	11,613	-405 (-3%)	-64 (-1%)
Aug	11,780	-136 (-1%)	0 (0%)
Sep	11,240	-666 (-6%)	36 (0%)
Annual (TAF/Yr)	6,164	-827 (-13%)	123 (2%)

1 Based on CALSIM II inputs for 82-year simulation period

2. Long Term is the average quantity for the period of Oct 1921 - Sep 2003.

3. Upper Quartile Average is the average of values within the 25% - 0% probability exceedence range

Note: Percentage change not shown if in excess of 500%

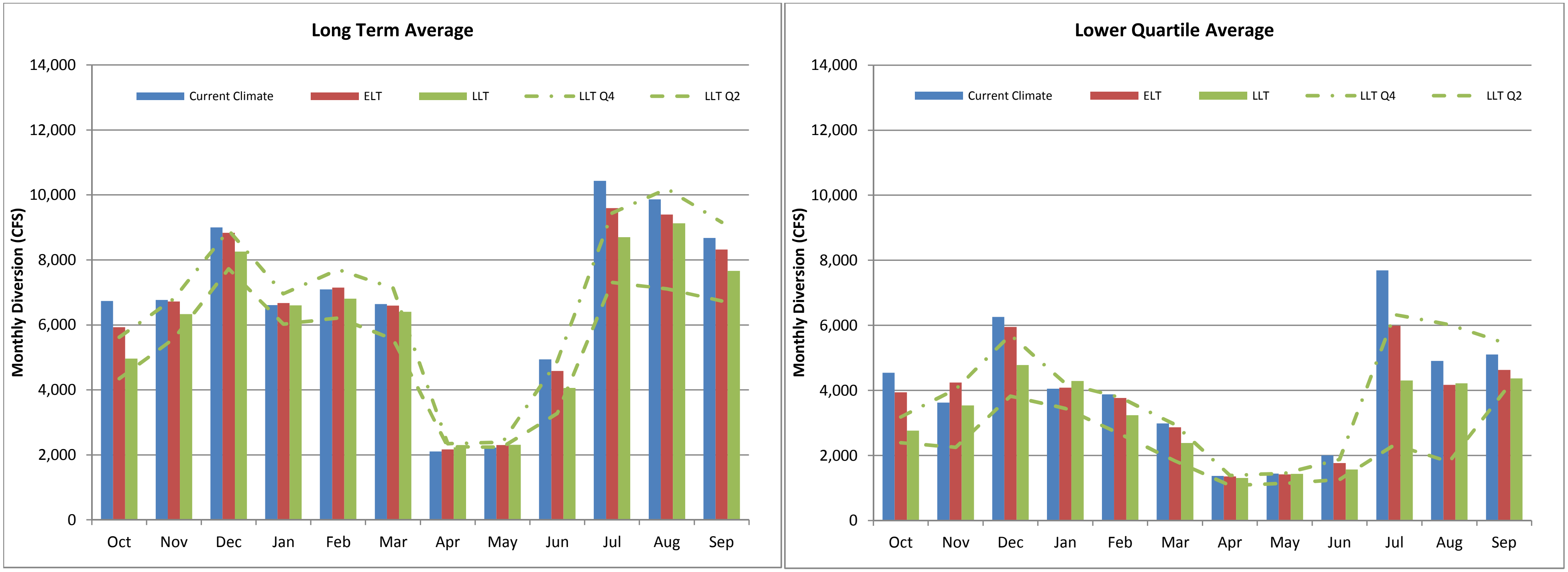


Figure 25B-26.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) , Monthly Diversion (CFS)

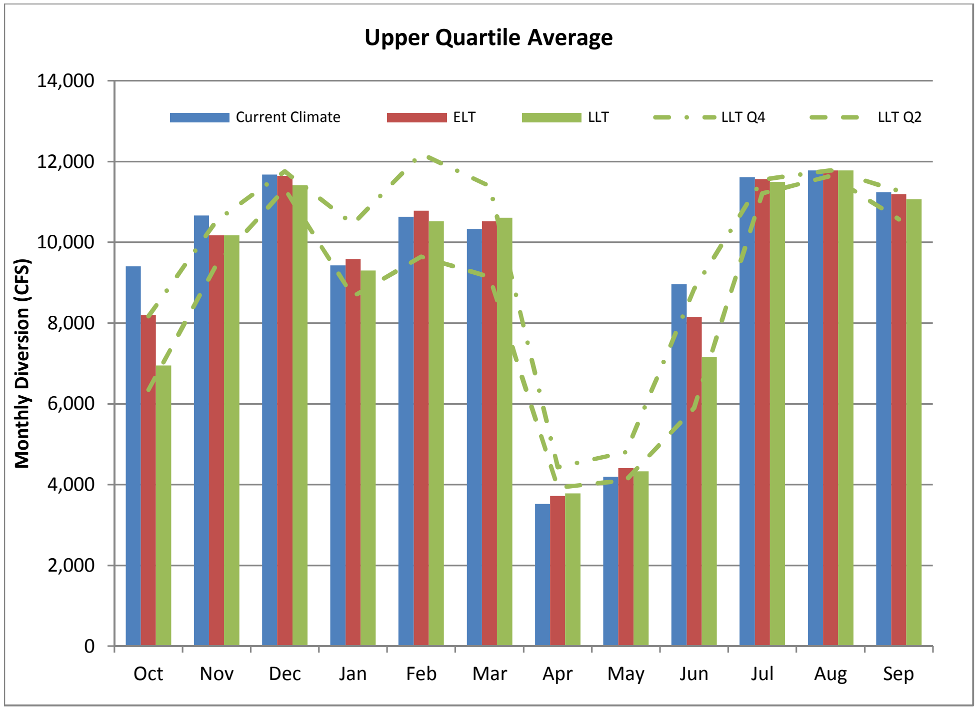


Figure 25B-26.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) , Monthly Diversion (CFS)

Compilation of No Action and NODOS Alternative A, B and C Results

Table 25B-28-1.
Funks Reservoir to Sites Reservoir
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

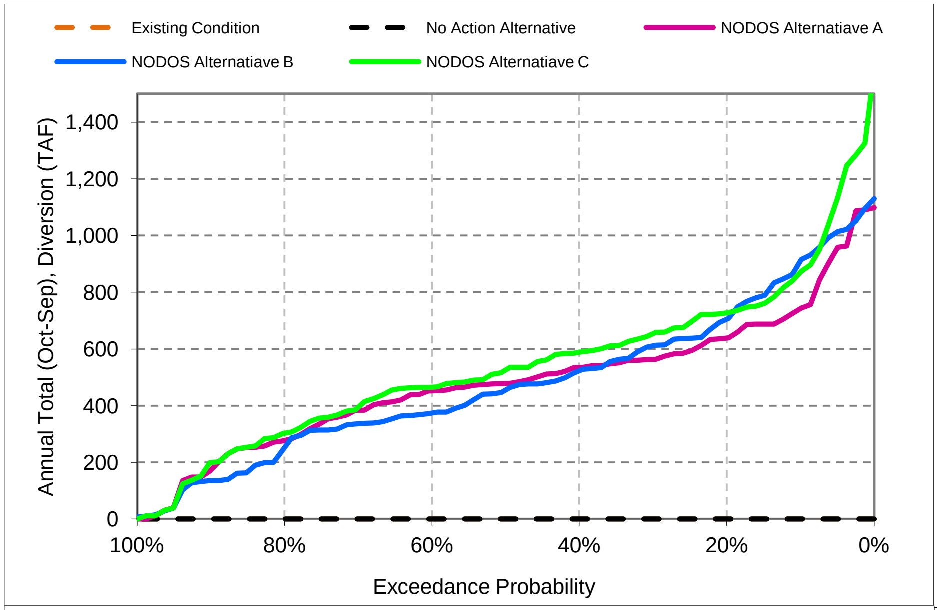
Long Term Average[1]

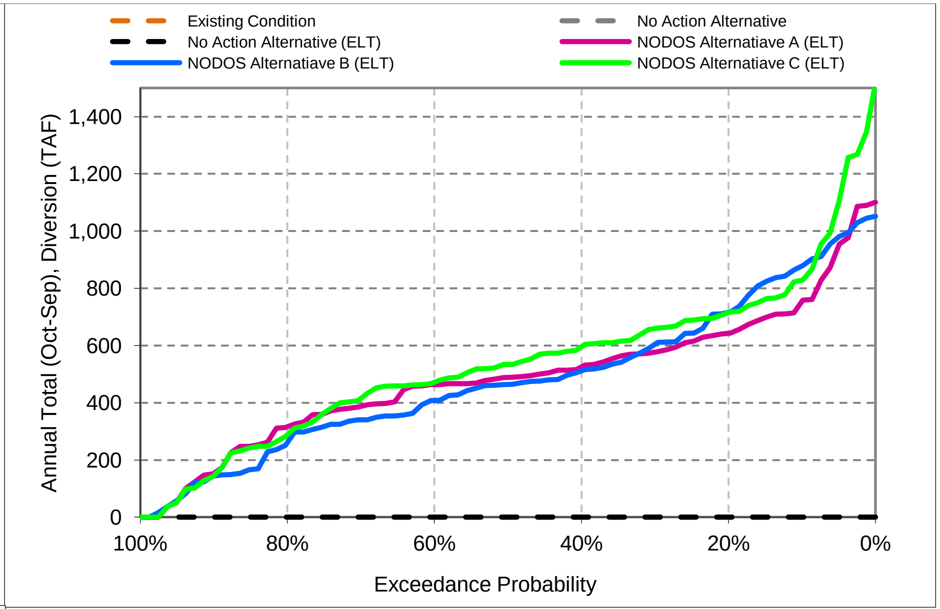
	Annual Total Oct-Sep			
	Current[2]		ELT	LLT
Change in No Action Alternative[3]:	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	483	+483	+488	+510
NODOS Alternative B	483	+483	+484	+500
NODOS Alternative C	543	+543	+539	+567

Quartile Averages

	Annual Total Oct-Sep			
	Current		ELT	LLT
Upper (25%-0% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	781	+781	+783	+820
NODOS Alternative B	861	+861	+851	+883
NODOS Alternative C	922	+922	+904	+995
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	537	+537	+542	+554
NODOS Alternative B	542	+542	+534	+585
NODOS Alternative C	603	+603	+607	+586
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	428	+428	+436	+450
NODOS Alternative B	372	+372	+389	+377
NODOS Alternative C	450	+450	+465	+465
Lower (100%-75% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	186	+186	+191	+214
NODOS Alternative B	155	+155	+157	+153
NODOS Alternative C	195	+195	+181	+217

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





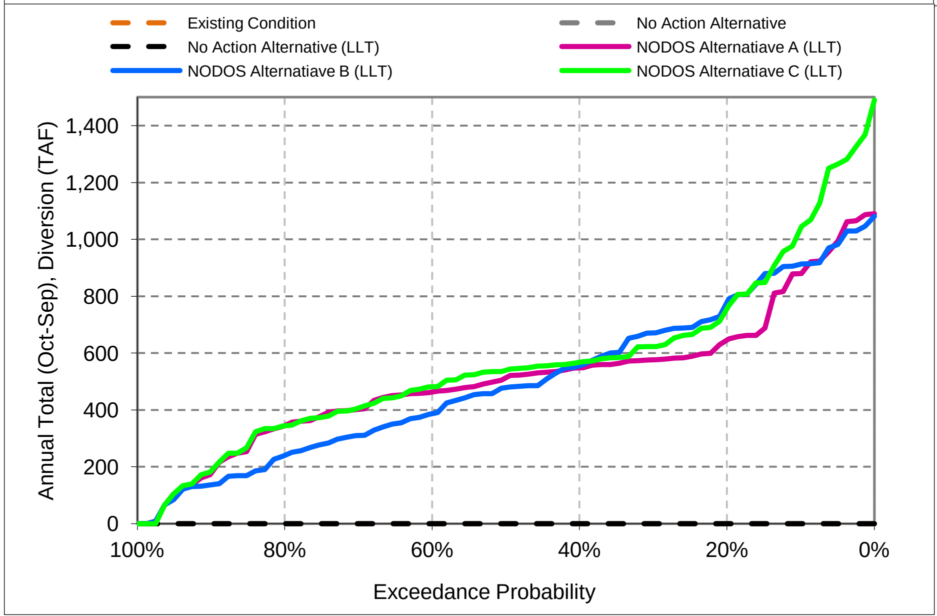


Figure 25B-28-1.
Funks Reservoir to Sites Reservoir,
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

Table 25B-28-2.
Funks Reservoir to Sites Reservoir
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

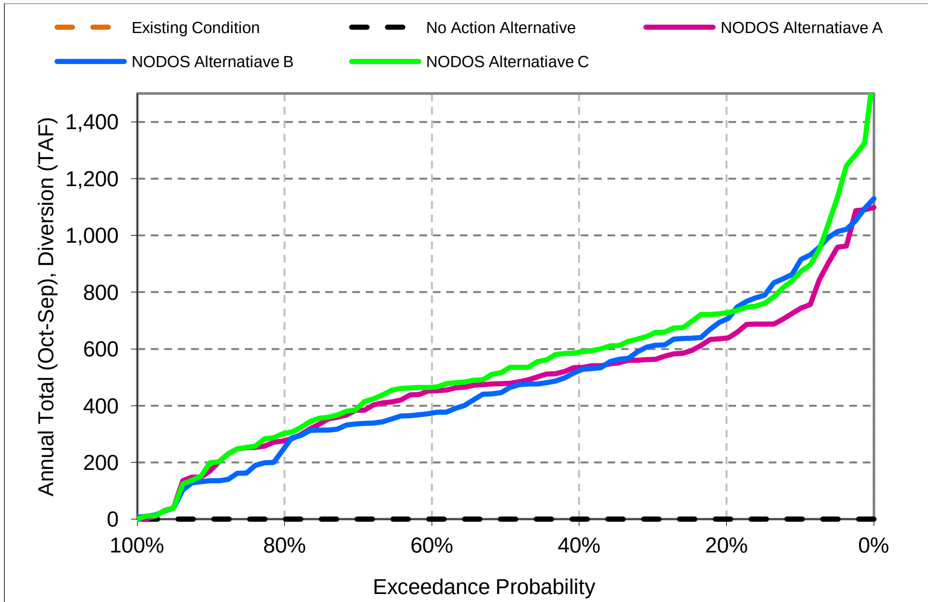
Long Term Average[1]

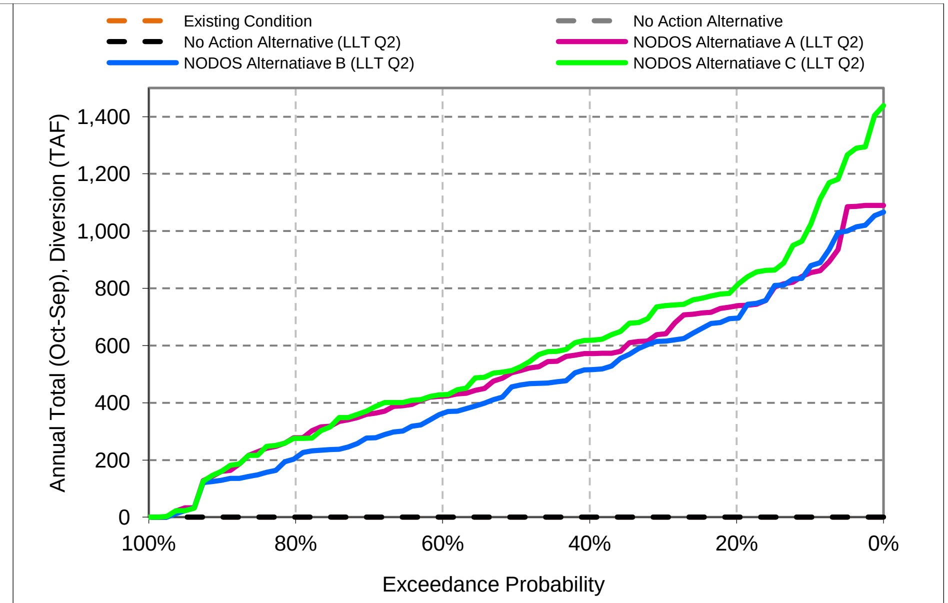
	Annual Total Oct-Sep			
	Current[2]		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	483	+483	+509	+521
NODOS Alternative B	483	+483	+463	+519
NODOS Alternative C	543	+543	+564	+569

Quartile Averages

	Annual Total Oct-Sep			
	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	781	+781	+864	+810
NODOS Alternative B	861	+861	+848	+872
NODOS Alternative C	922	+922	+1,015	+939
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	537	+537	+593	+572
NODOS Alternative B	542	+542	+542	+600
NODOS Alternative C	603	+603	+646	+625
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	428	+428	+409	+471
NODOS Alternative B	372	+372	+336	+419
NODOS Alternative C	450	+450	+426	+489
Lower (100%-75% exceedence)				
Change in No Action Alternative:	0	--	+0	+0
Change in Alternative from No Action Alternative:				
NODOS Alternative A	186	+186	+169	+229
NODOS Alternative B	155	+155	+126	+183
NODOS Alternative C	195	+195	+167	+222

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





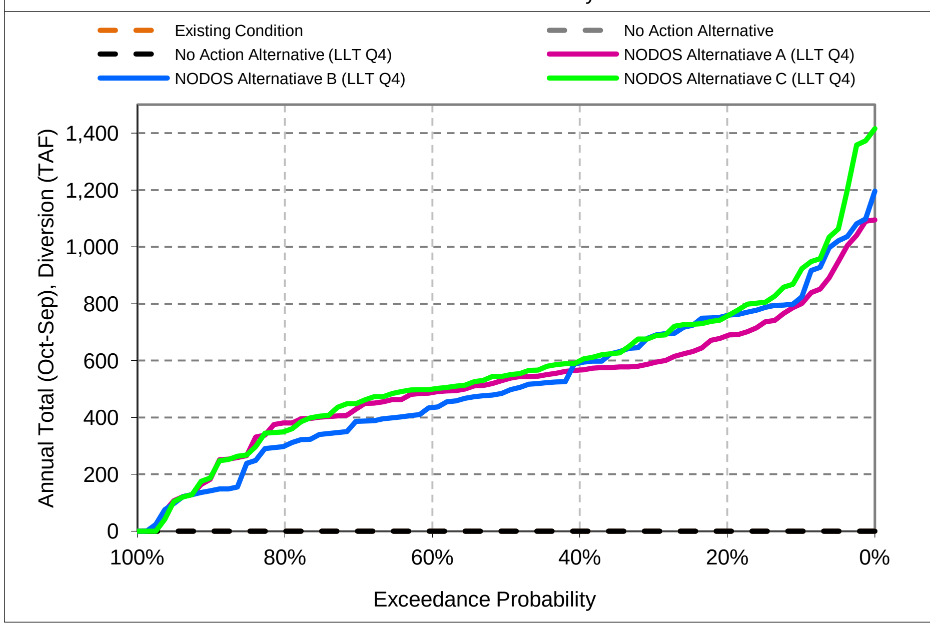


Figure 25B-28-2.
Funks Reservoir to Sites Reservoir,
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

Table 25B-29-1.
Funks Reservoir to Sites Reservoir
Monthly Diversion (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	548	+548	+520	+635	1,935	+1,935	+2,031	+2,036	161	+161	+159	+156	36	+36	+13	+4
NODOS Alternative B	409	+409	+385	+462	1,783	+1,783	+1,810	+1,847	423	+423	+478	+454	57	+57	+17	+6
NODOS Alternative C	553	+553	+510	+640	2,183	+2,183	+2,241	+2,259	241	+241	+248	+246	38	+38	+12	+4

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,787	+1,787	+1,745	+1,980	3,531	+3,531	+3,687	+3,539	617	+617	+614	+602	140	+140	+49	+17
NODOS Alternative B	1,246	+1,246	+1,233	+1,407	2,785	+2,785	+2,786	+2,800	1,376	+1,376	+1,519	+1,463	222	+222	+65	+24
NODOS Alternative C	1,801	+1,801	+1,748	+1,981	3,905	+3,905	+3,978	+3,999	924	+924	+936	+936	149	+149	+45	+17
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	343	+343	+273	+492	2,331	+2,331	+2,575	+2,420	10	+10	+9	+8	0	+0	+0	+0
NODOS Alternative B	340	+340	+266	+394	2,296	+2,296	+2,345	+2,436	291	+291	+356	+324	0	+0	+0	+0
NODOS Alternative C	346	+346	+231	+514	2,637	+2,637	+2,743	+2,723	18	+18	+33	+25	0	+0	+0	+0
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	1,453	+1,453	+1,478	+1,582	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative B	7	+7	+0	+0	1,524	+1,524	+1,610	+1,576	0	+0	+8	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	1,688	+1,688	+1,772	+1,679	0	+0	+0	+0	0	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	421	+421	+383	+599	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	541	+541	+516	+588	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	500	+500	+472	+630	0	+0	+0	+0	0	+0	+0	+0

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

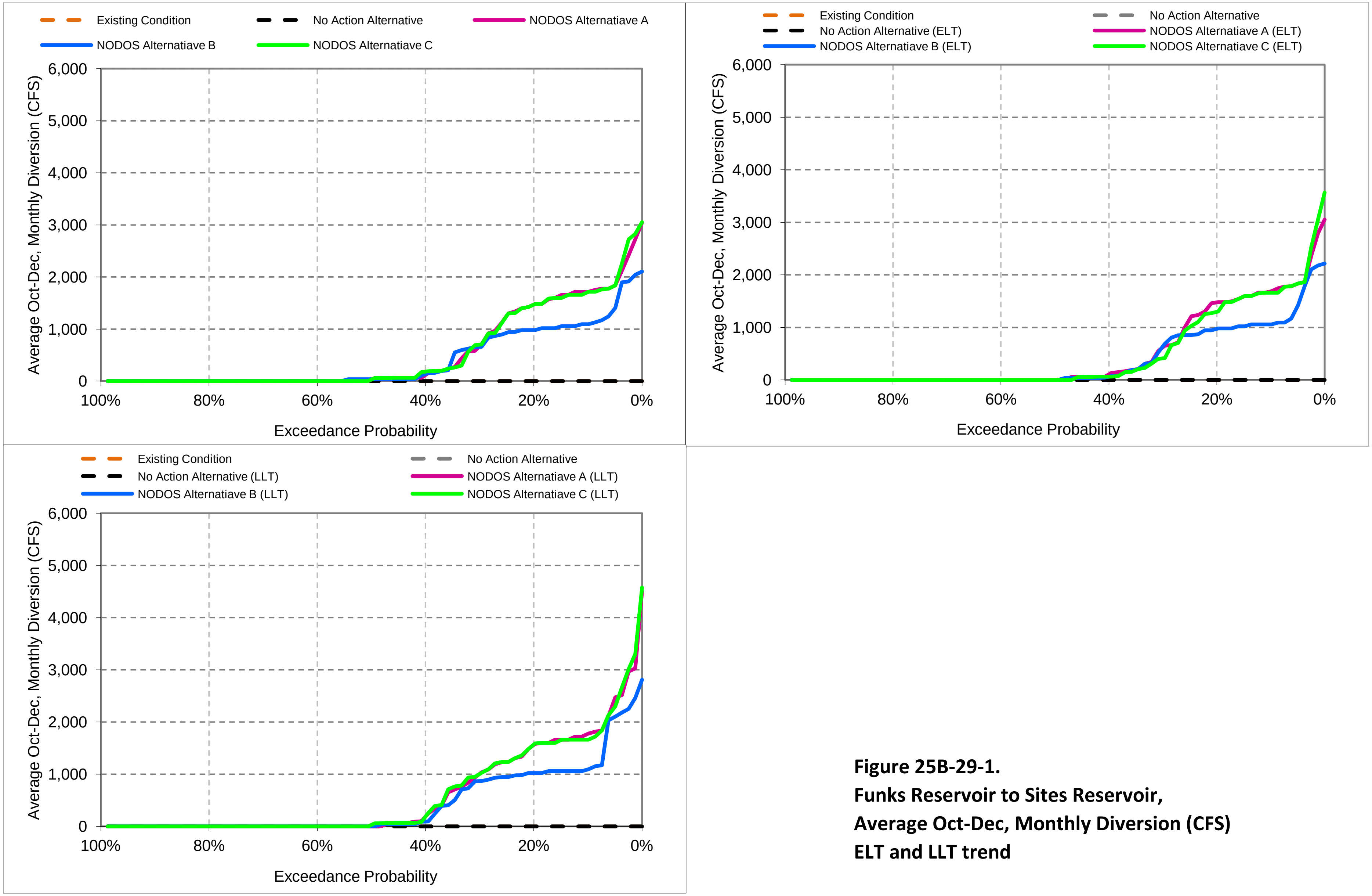


Figure 25B-29-1.
Funks Reservoir to Sites Reservoir,
Average Oct-Dec, Monthly Diversion (CFS)
ELT and LLT trend

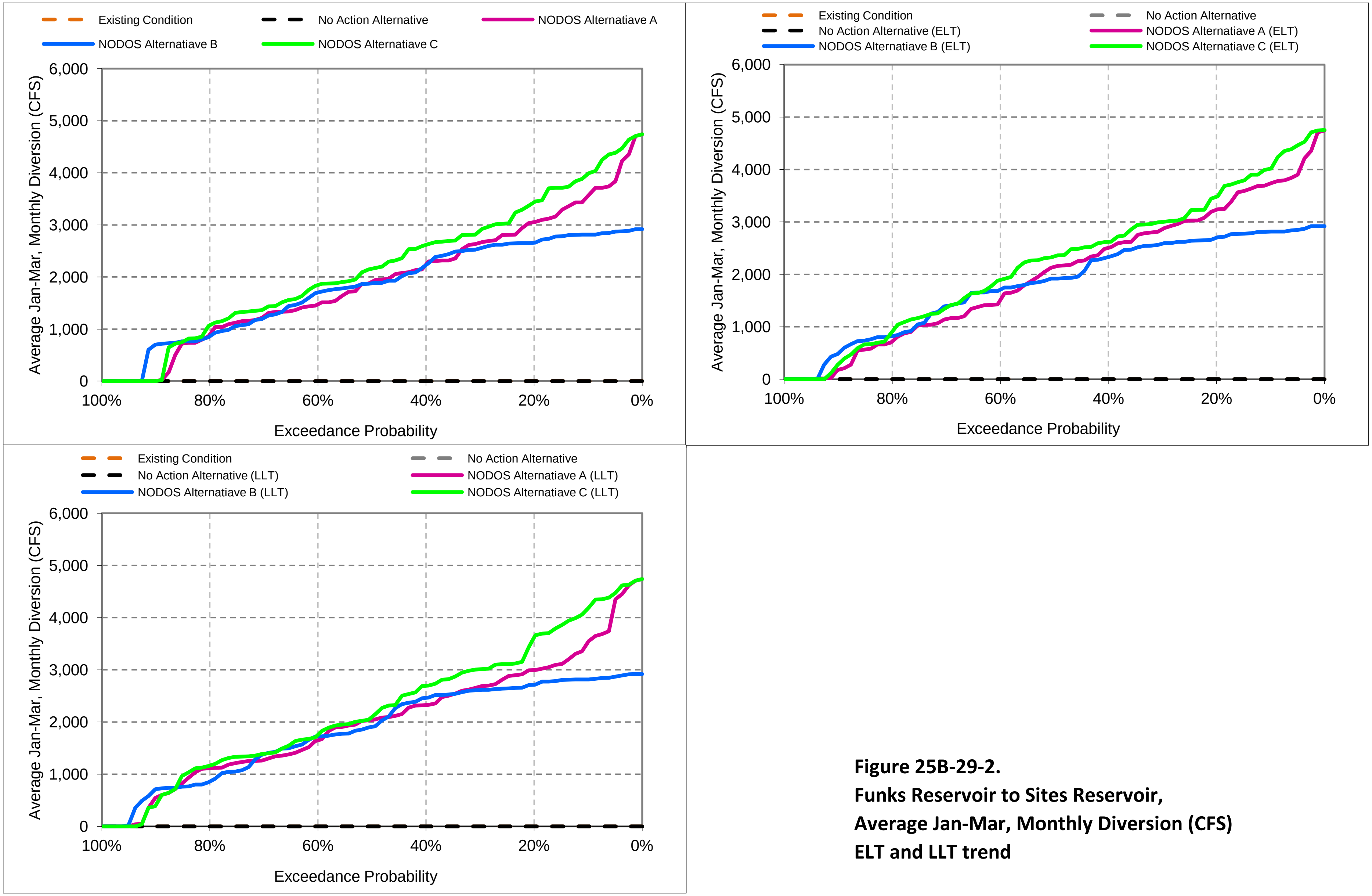
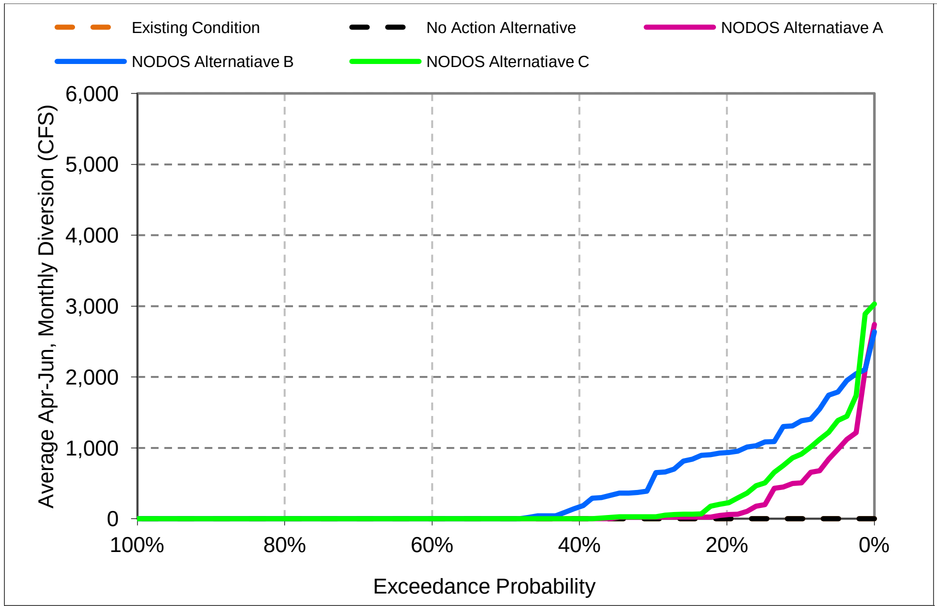
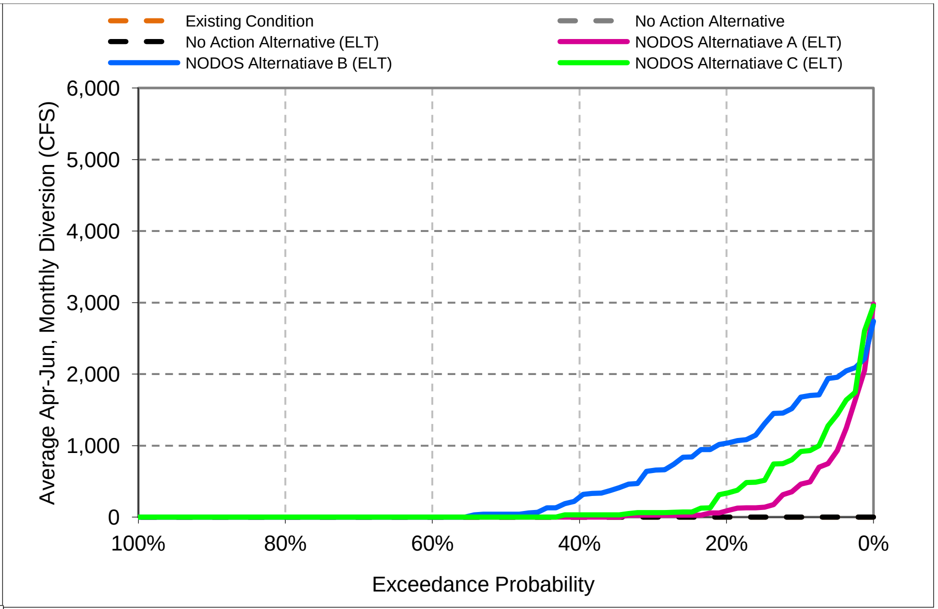


Figure 25B-29-2.
Funks Reservoir to Sites Reservoir,
Average Jan-Mar, Monthly Diversion (CFS)
ELT and LLT trend





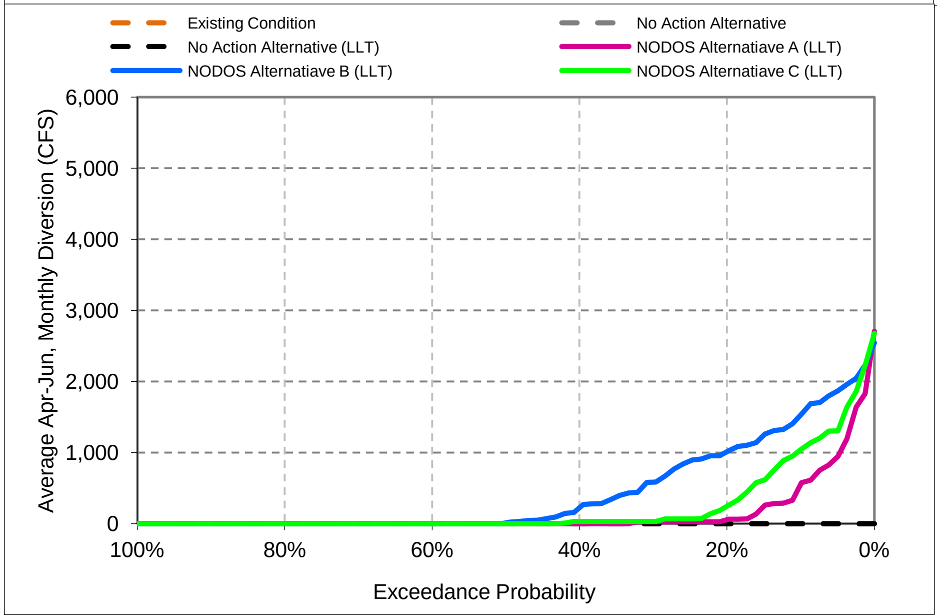


Figure 25B-29-3.
Funks Reservoir to Sites Reservoir,
Average Apr-Jun, Monthly Diversion (CFS)
ELT and LLT trend

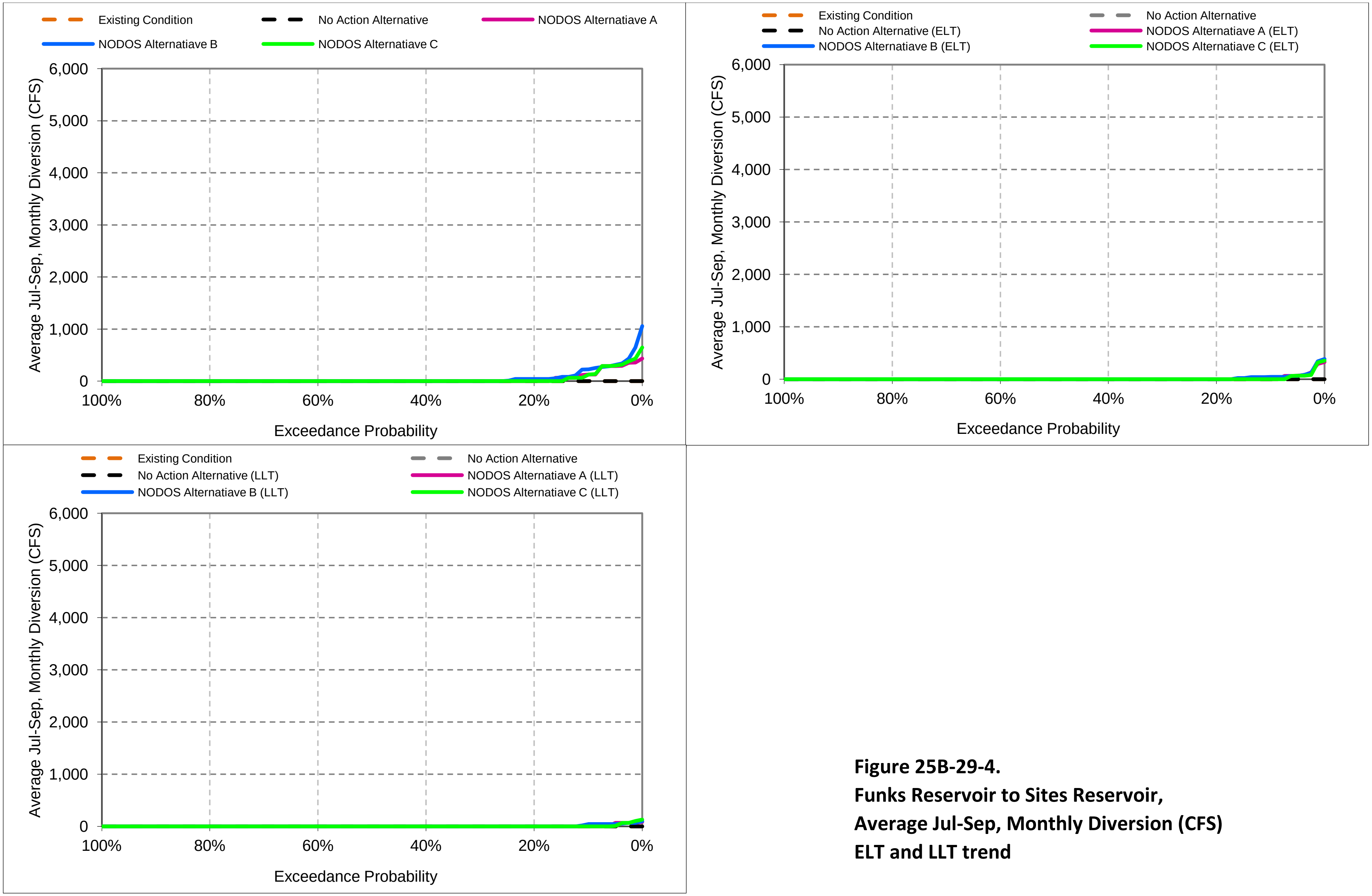


Figure 25B-29-4.
Funks Reservoir to Sites Reservoir,
Average Jul-Sep, Monthly Diversion (CFS)
ELT and LLT trend

Table 25B-29-2.
Funks Reservoir to Sites Reservoir
Monthly Diversion (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	548	+548	+571	+661	1,935	+1,935	+2,102	+2,032	161	+161	+158	+178	36	+36	+5	+20
NODOS Alternative B	409	+409	+429	+483	1,783	+1,783	+1,744	+1,843	423	+423	+391	+527	57	+57	+6	+19
NODOS Alternative C	553	+553	+588	+632	2,183	+2,183	+2,323	+2,242	241	+241	+226	+276	38	+38	+2	+10

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,787	+1,787	+1,861	+1,847	3,531	+3,531	+3,805	+3,716	617	+617	+614	+663	140	+140	+18	+77
NODOS Alternative B	1,246	+1,246	+1,327	+1,340	2,785	+2,785	+2,813	+2,757	1,376	+1,376	+1,242	+1,523	222	+222	+22	+75
NODOS Alternative C	1,801	+1,801	+1,886	+1,813	3,905	+3,905	+4,219	+3,971	924	+924	+878	+1,015	149	+149	+7	+40
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	343	+343	+357	+730	2,331	+2,331	+2,603	+2,515	10	+10	+1	+32	0	+0	+0	+0
NODOS Alternative B	340	+340	+344	+548	2,296	+2,296	+2,323	+2,378	291	+291	+301	+537	0	+0	+0	+0
NODOS Alternative C	346	+346	+402	+654	2,637	+2,637	+2,949	+2,724	18	+18	+5	+65	0	+0	+0	+0
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+6	1,453	+1,453	+1,503	+1,555	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative B	7	+7	+0	+2	1,524	+1,524	+1,345	+1,680	0	+0	+0	+23	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+3	1,688	+1,688	+1,606	+1,732	0	+0	+0	+1	0	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	421	+421	+493	+344	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	541	+541	+504	+575	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	500	+500	+515	+539	0	+0	+0	+0	0	+0	+0	+0

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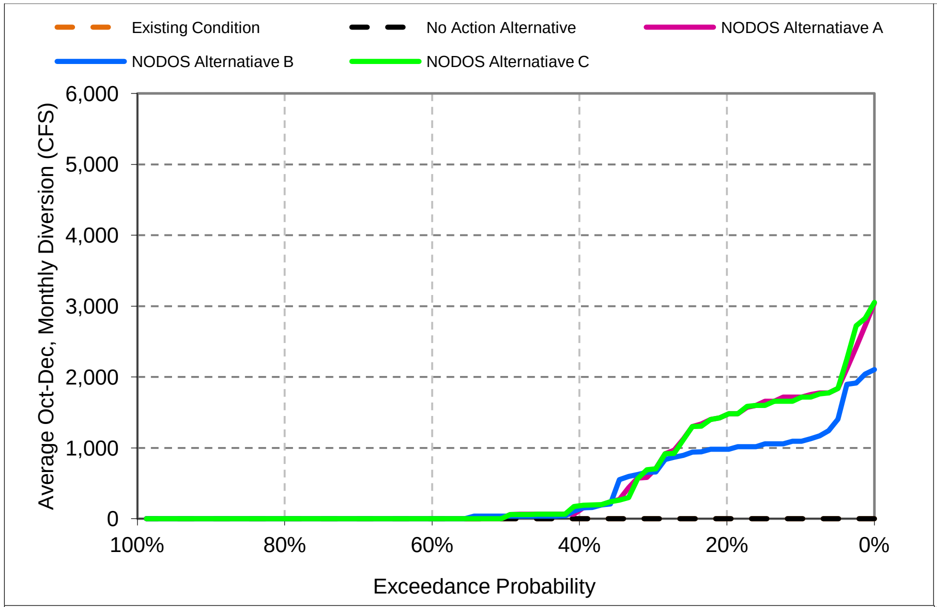
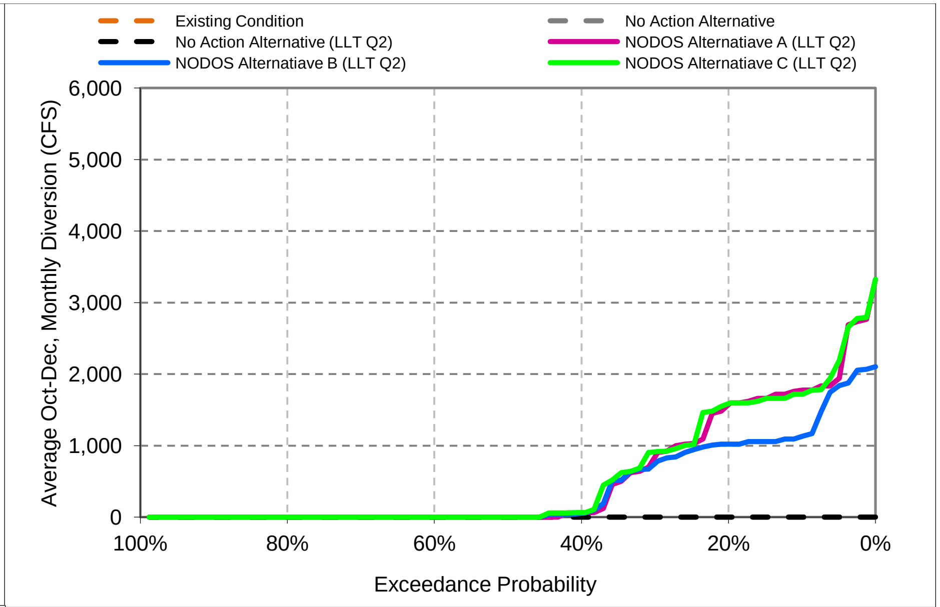




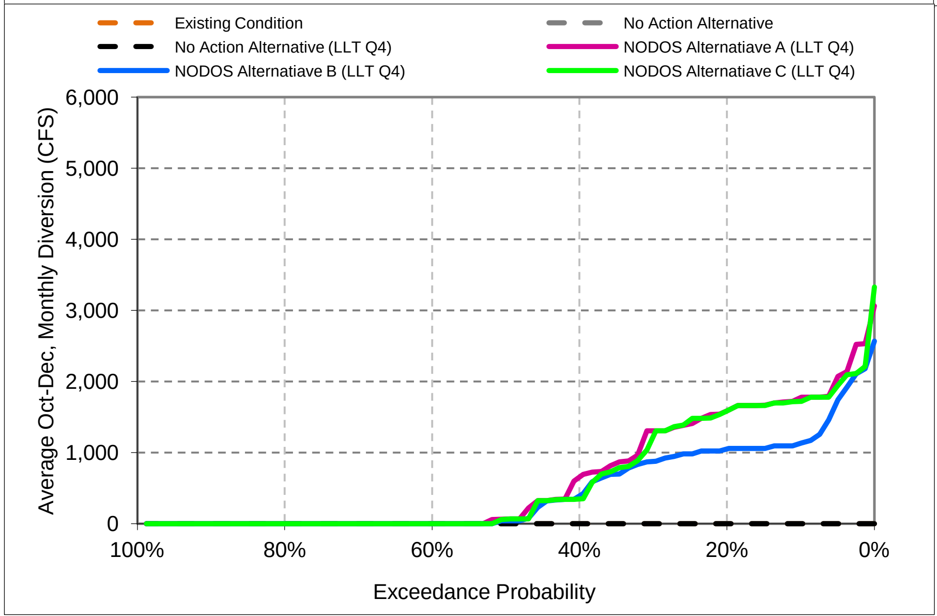


Figure 25B-29-5.
Funks Reservoir to Sites Reservoir,
Average Oct-Dec, Monthly Diversion (CFS)
LLT Sensitivity

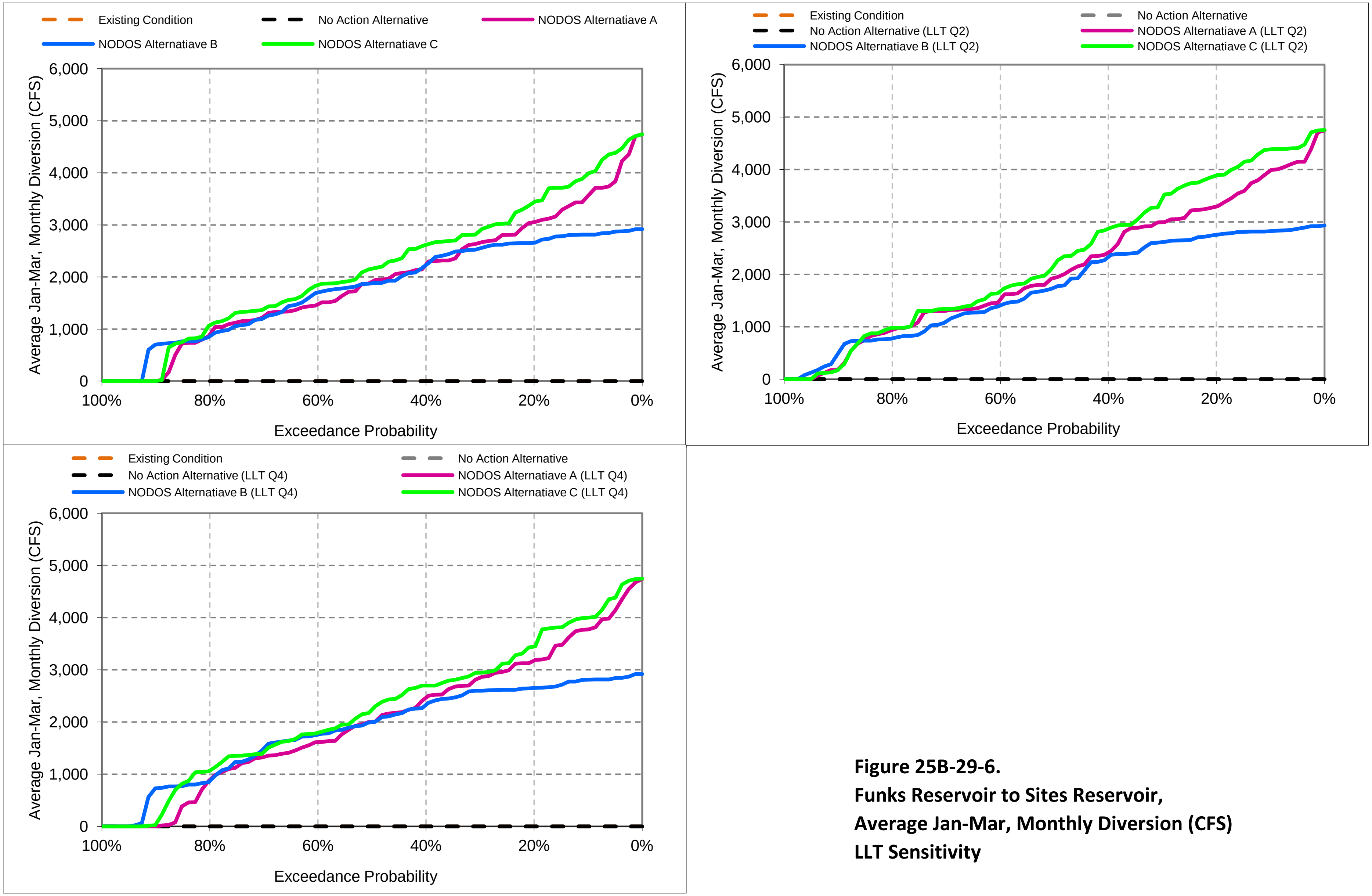
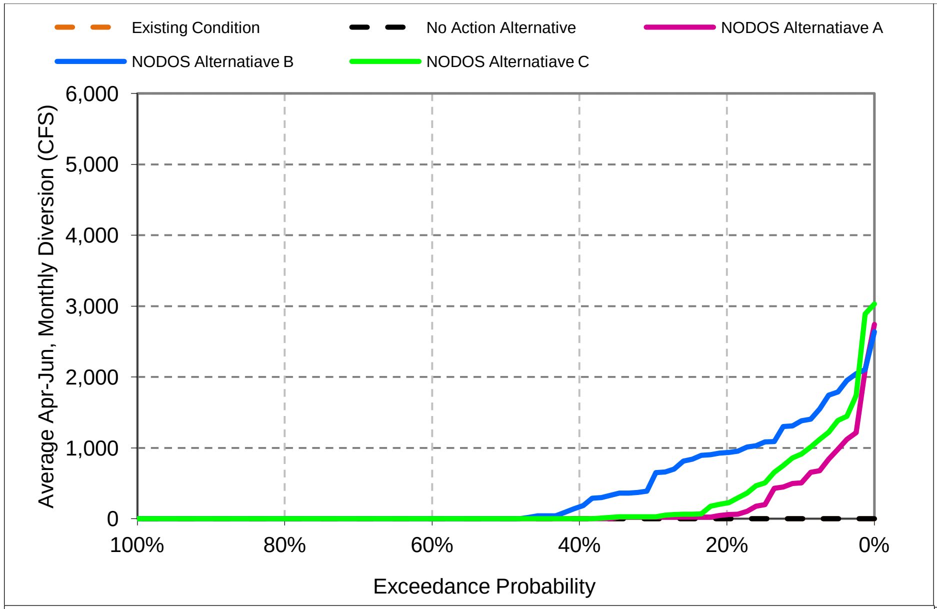
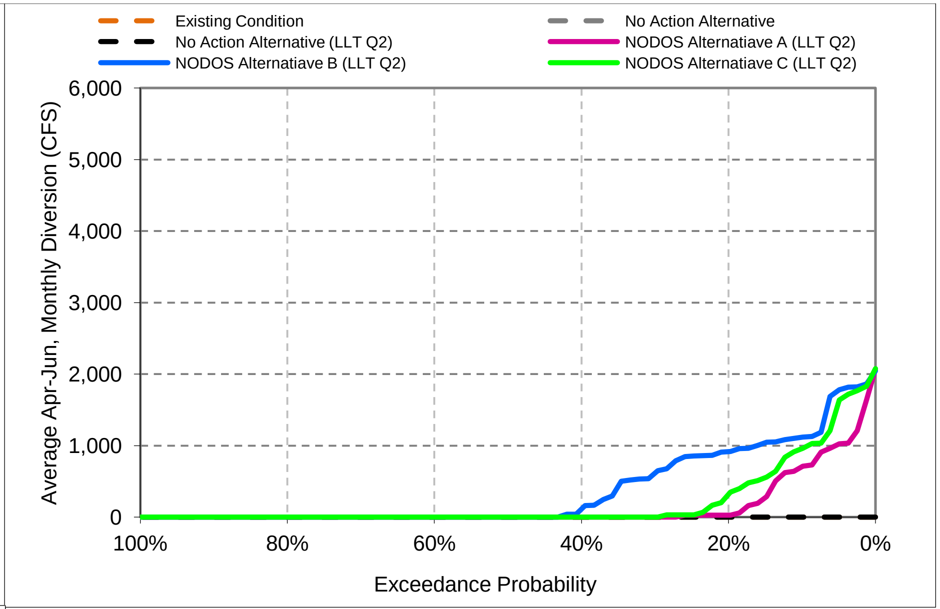


Figure 25B-29-6.
Funks Reservoir to Sites Reservoir,
Average Jan-Mar, Monthly Diversion (CFS)
LLT Sensitivity





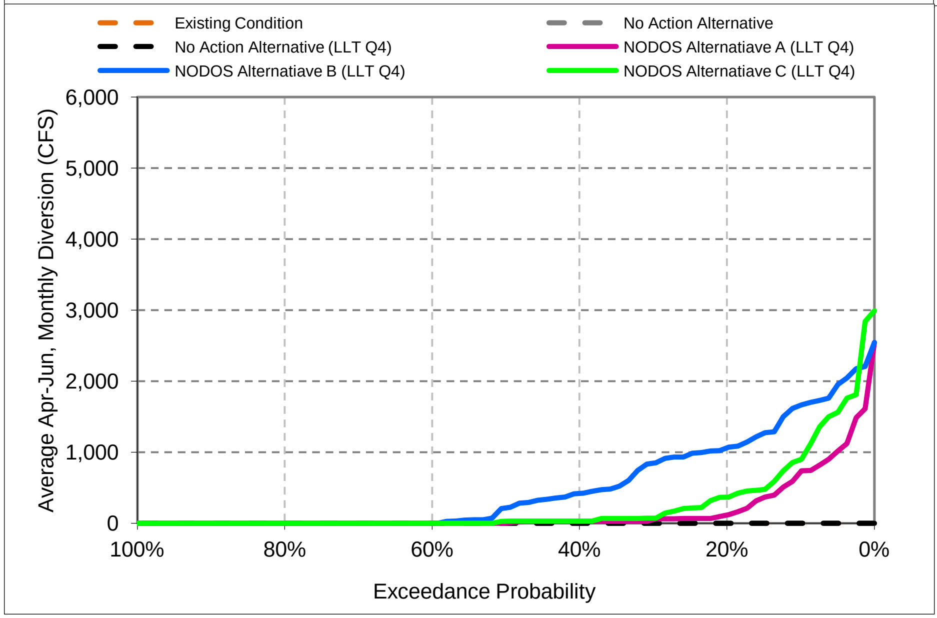


Figure 25B-29-7.
Funks Reservoir to Sites Reservoir,
Average Apr-Jun, Monthly Diversion (CFS)
LLT Sensitivity

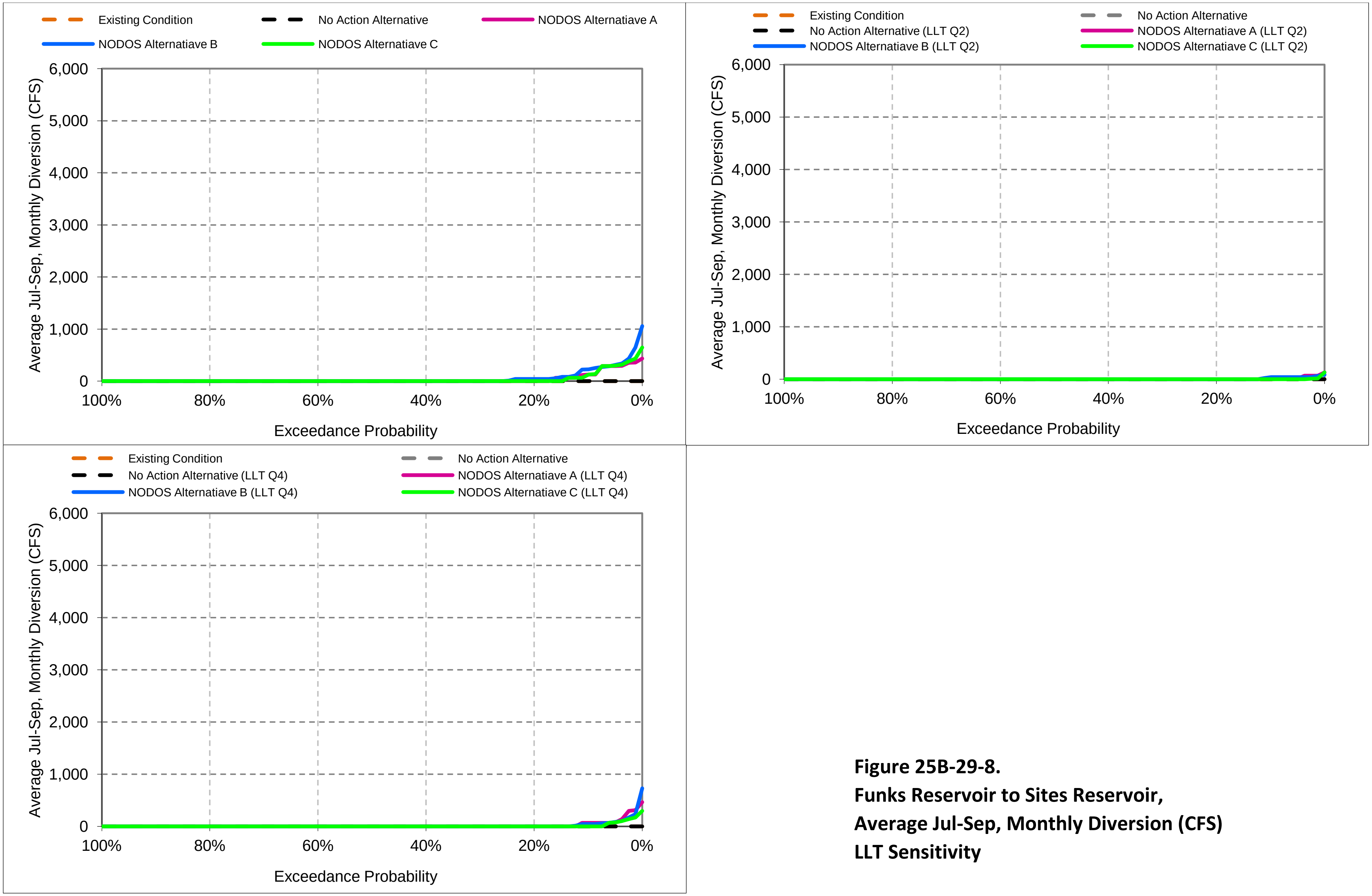


Figure 25B-29-8.
Funks Reservoir to Sites Reservoir,
Average Jul-Sep, Monthly Diversion (CFS)
LLT Sensitivity

Table 25B-30-1.
Sites Reservoir
End of Month Storage (TAF)
ELT and LLT trend

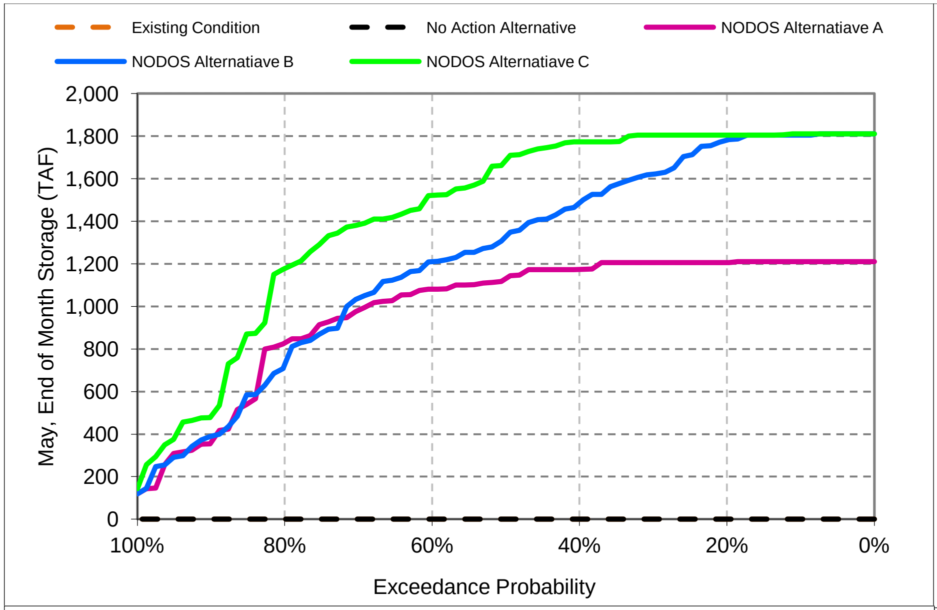
Long Term Average[1]

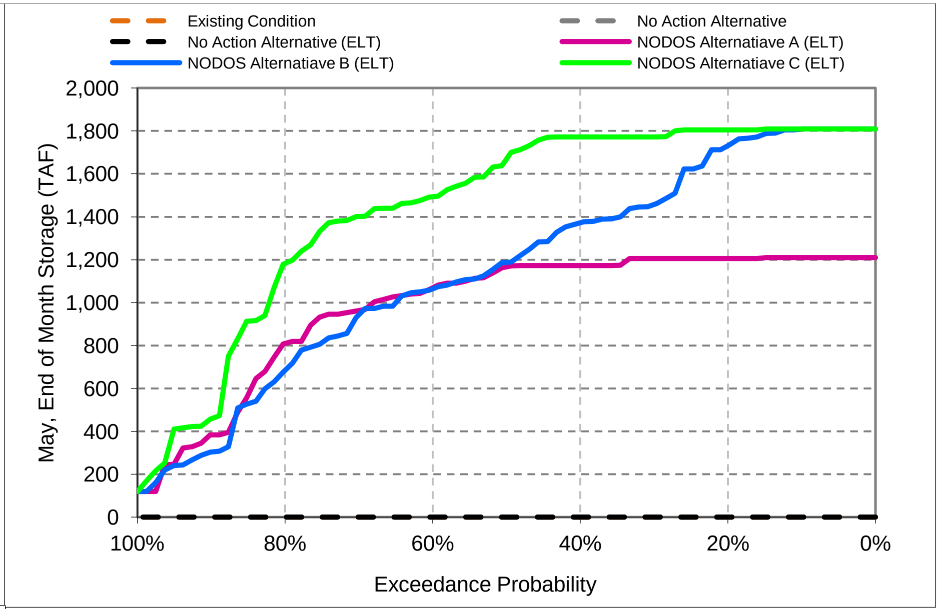
	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	985	+985	+980	+938	687	+687	+676	+635
NODOS Alternative B	1,235	+1,235	+1,152	+1,020	947	+947	+870	+739
NODOS Alternative C	1,441	+1,441	+1,439	+1,366	1,114	+1,114	+1,108	+1,033

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,209	+1,209	+1,208	+1,208	1,011	+1,011	+953	+912
NODOS Alternative B	1,794	+1,794	+1,771	+1,666	1,521	+1,521	+1,452	+1,339
NODOS Alternative C	1,807	+1,807	+1,808	+1,808	1,580	+1,580	+1,543	+1,481
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,187	+1,187	+1,184	+1,170	826	+826	+809	+813
NODOS Alternative B	1,519	+1,519	+1,381	+1,219	1,173	+1,173	+1,067	+907
NODOS Alternative C	1,771	+1,771	+1,766	+1,707	1,335	+1,335	+1,342	+1,313
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,046	+1,046	+1,044	+957	661	+661	+706	+644
NODOS Alternative B	1,144	+1,144	+1,025	+841	856	+856	+744	+554
NODOS Alternative C	1,478	+1,478	+1,485	+1,333	1,108	+1,108	+1,162	+1,021
Lower (100%-75% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	509	+509	+495	+428	257	+257	+245	+180
NODOS Alternative B	492	+492	+437	+354	246	+246	+223	+155
NODOS Alternative C	727	+727	+715	+633	442	+442	+402	+331

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





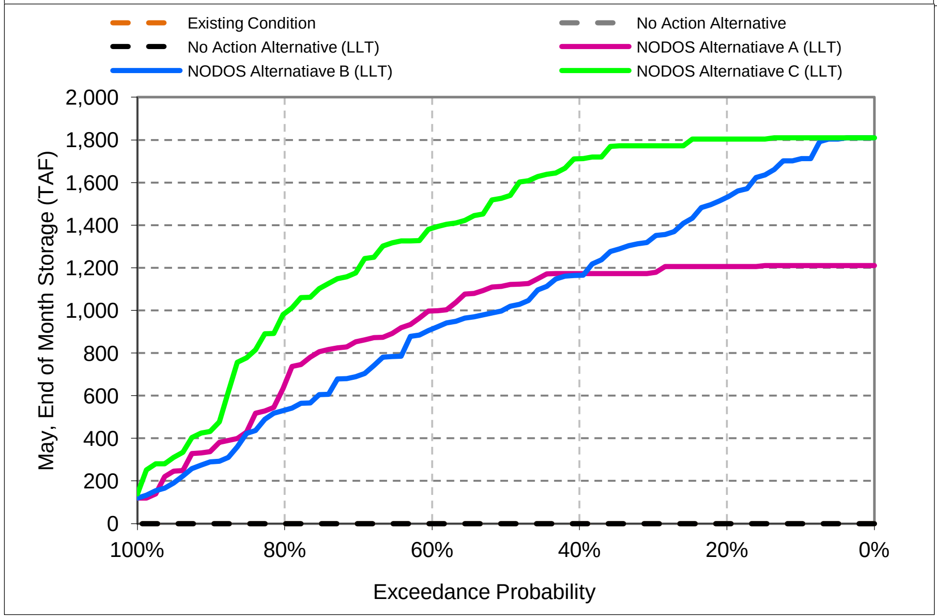
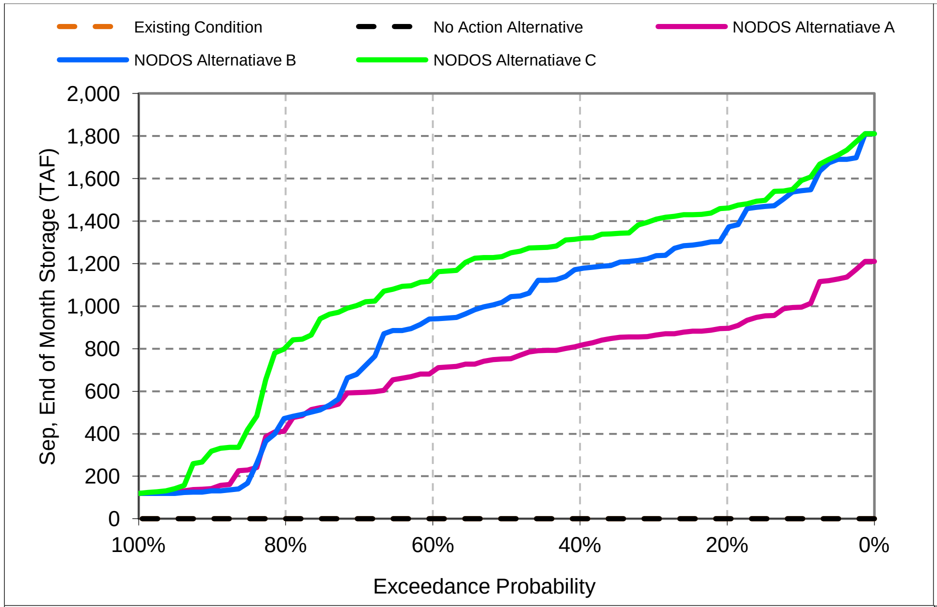
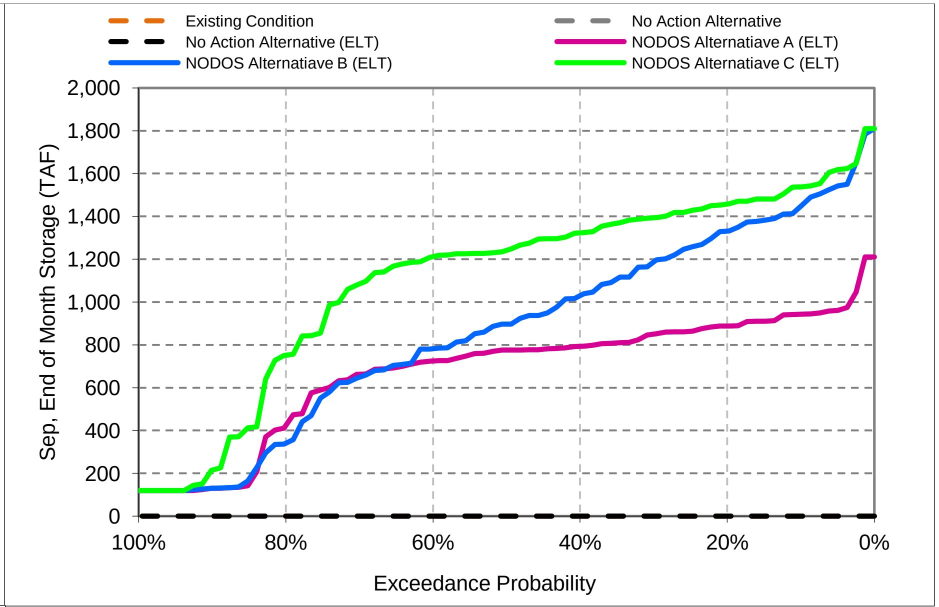


Figure 25B-30-1.
Sites Reservoir,
May, End of Month Storage (TAF)
ELT and LLT trend





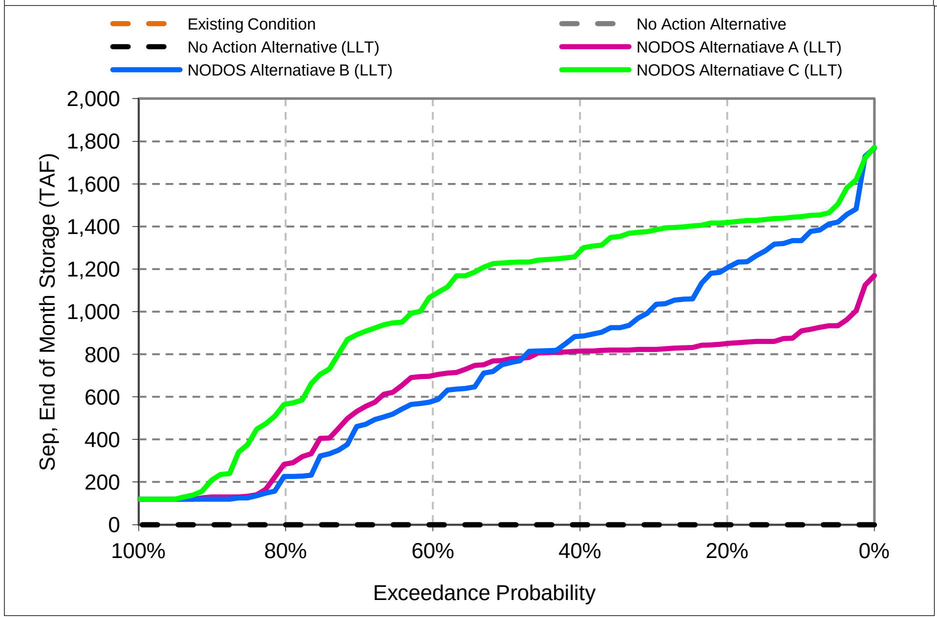


Figure 25B-30-2.
Sites Reservoir,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-30-2.
Sites Reservoir
End of Month Storage (TAF)
LLT Sensitivity

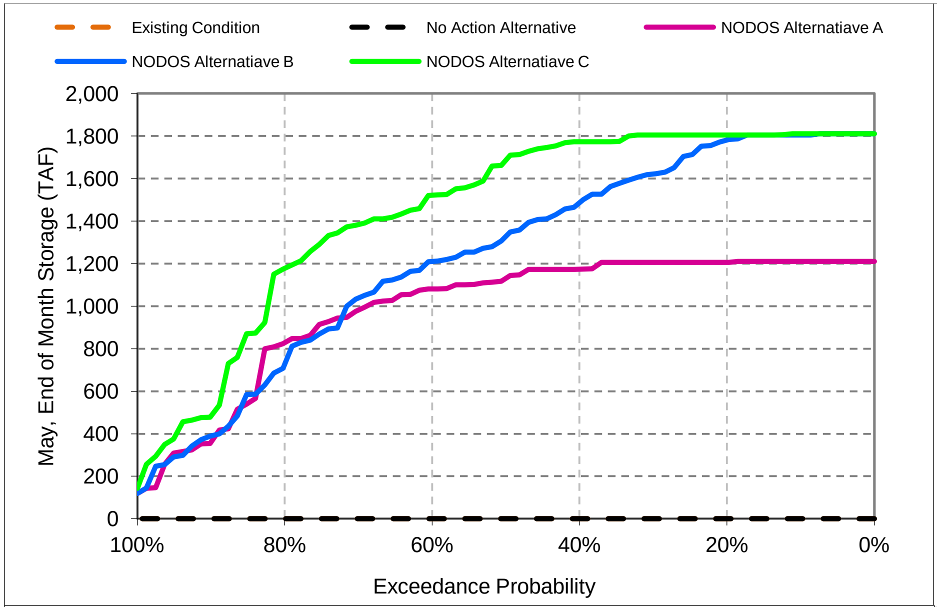
Long Term Average[1]

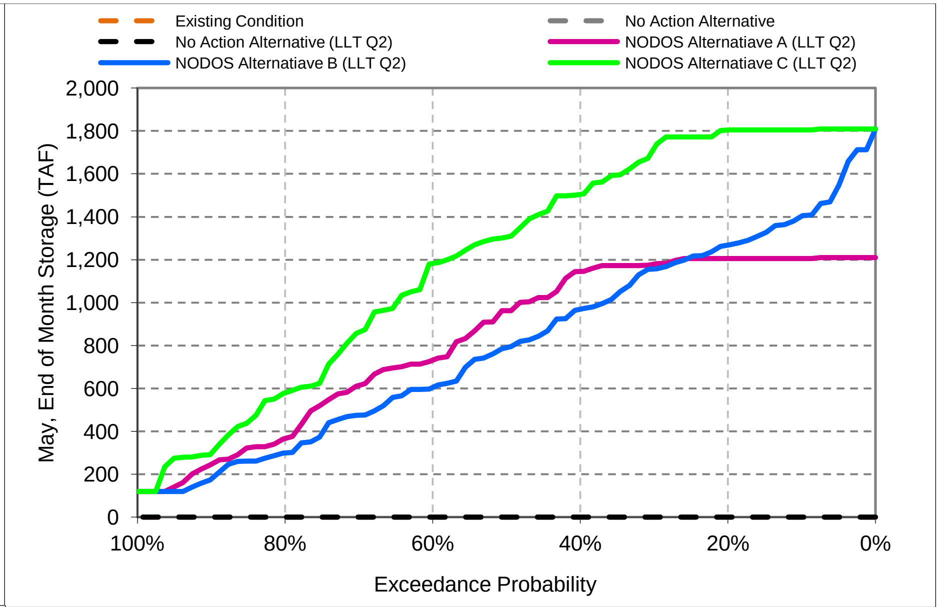
	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	985	+985	+832	+1,004	687	+687	+520	+660
NODOS Alternative B	1,235	+1,235	+808	+1,210	947	+947	+533	+906
NODOS Alternative C	1,441	+1,441	+1,200	+1,485	1,114	+1,114	+859	+1,122

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,209	+1,209	+1,207	+1,210	1,011	+1,011	+868	+952
NODOS Alternative B	1,794	+1,794	+1,414	+1,771	1,521	+1,521	+1,067	+1,456
NODOS Alternative C	1,807	+1,807	+1,801	+1,810	1,580	+1,580	+1,449	+1,547
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,187	+1,187	+1,122	+1,193	826	+826	+707	+788
NODOS Alternative B	1,519	+1,519	+1,003	+1,474	1,173	+1,173	+676	+1,112
NODOS Alternative C	1,771	+1,771	+1,560	+1,788	1,335	+1,335	+1,164	+1,355
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,046	+1,046	+732	+1,078	661	+661	+384	+647
NODOS Alternative B	1,144	+1,144	+592	+1,113	856	+856	+263	+794
NODOS Alternative C	1,478	+1,478	+1,061	+1,562	1,108	+1,108	+654	+1,115
Lower (100%-75% exceedence)								
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:								
NODOS Alternative A	509	+509	+276	+547	257	+257	+125	+256
NODOS Alternative B	492	+492	+222	+492	246	+246	+120	+266
NODOS Alternative C	727	+727	+389	+799	442	+442	+175	+483

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





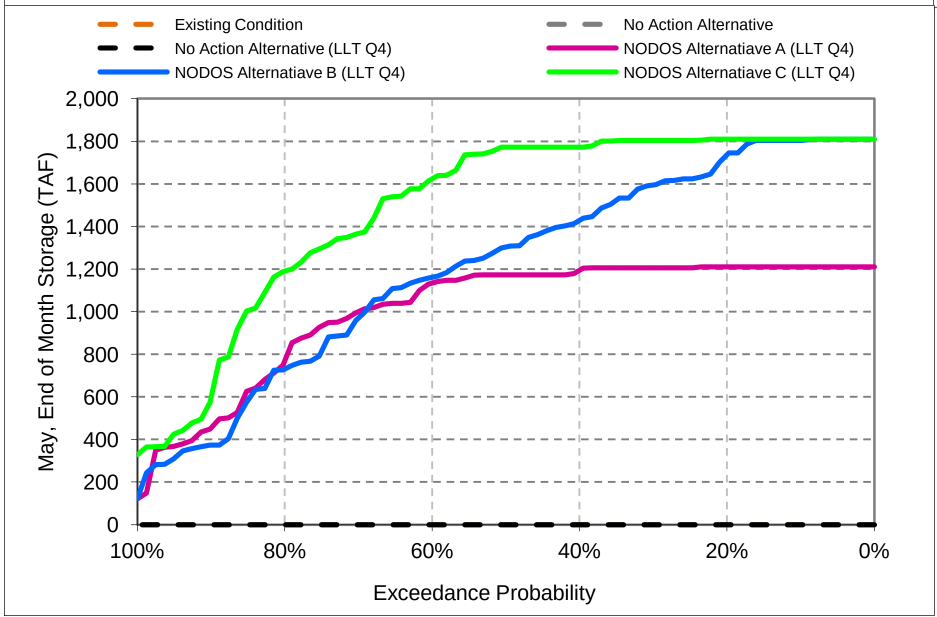
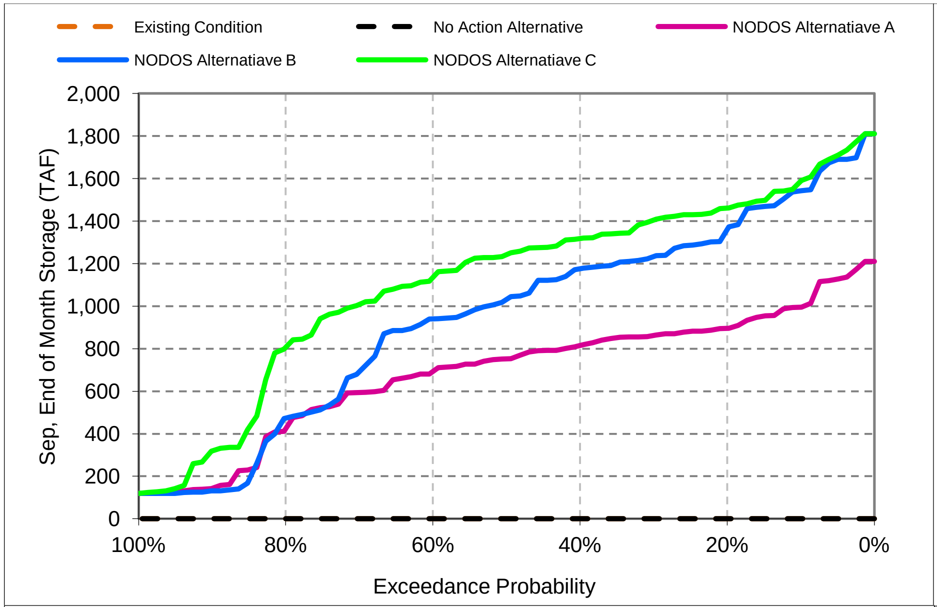
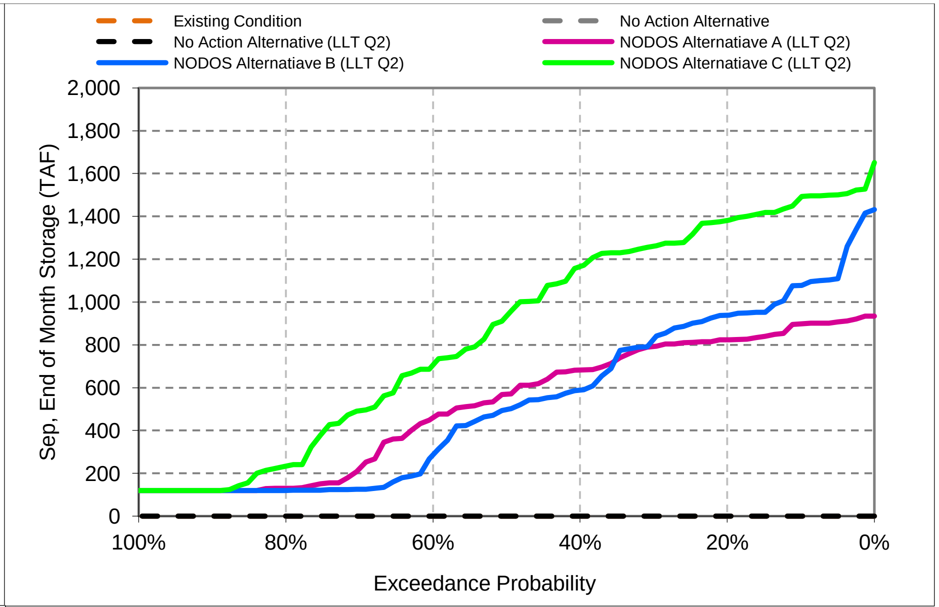


Figure 25B-30-3.
Sites Reservoir,
May, End of Month Storage (TAF)
LLT Sensitivity





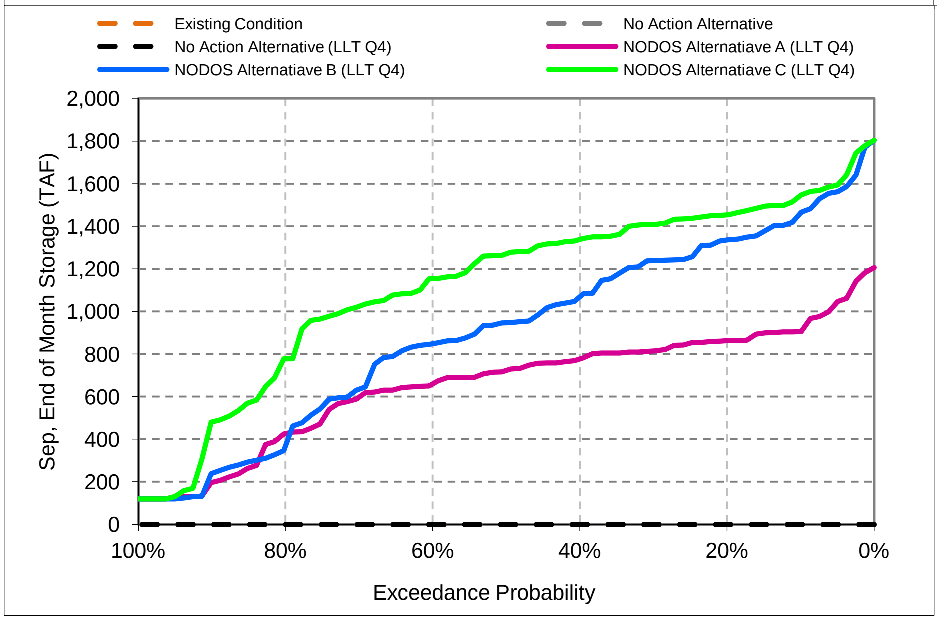


Figure 25B-30-4.
Sites Reservoir,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-31-1.
Total Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake and Sites Reservoir
End of Month Storage (TAF)
ELT and LLT trend

Long Term Average[1]

	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	9,596	--	-268	-611	6,331	--	-516	-1,138
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	10,706	+1,110	+1,135	+1,105	7,197	+867	+874	+829
NODOS Alternative B	10,972	+1,376	+1,340	+1,251	7,457	+1,127	+1,081	+992
NODOS Alternative C	11,180	+1,584	+1,580	+1,518	7,634	+1,304	+1,273	+1,191

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	11,395	--	-36	-104	8,528	--	-533	-1,259
Change in Alternative from No Action Alternative:								
NODOS Alternative A	12,608	+1,213	+1,208	+1,240	9,513	+985	+967	+1,056
NODOS Alternative B	13,161	+1,766	+1,704	+1,605	9,999	+1,471	+1,425	+1,357
NODOS Alternative C	13,208	+1,813	+1,807	+1,817	10,094	+1,566	+1,542	+1,594
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	10,820	--	-146	-413	7,112	--	-547	-1,196
Change in Alternative from No Action Alternative:								
NODOS Alternative A	12,026	+1,206	+1,193	+1,154	8,121	+1,009	+974	+930
NODOS Alternative B	12,345	+1,525	+1,413	+1,305	8,396	+1,284	+1,164	+1,101
NODOS Alternative C	12,574	+1,754	+1,724	+1,631	8,621	+1,509	+1,434	+1,314
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	9,569	--	-361	-850	5,971	--	-488	-1,132
Change in Alternative from No Action Alternative:								
NODOS Alternative A	10,697	+1,128	+1,146	+1,164	6,860	+890	+891	+848
NODOS Alternative B	10,847	+1,278	+1,192	+1,139	7,093	+1,122	+1,012	+927
NODOS Alternative C	11,114	+1,545	+1,570	+1,490	7,235	+1,265	+1,299	+1,211
Lower (100%-75% exceedence)								
Change in No Action Alternative:	6,657	--	-527	-1,077	3,732	--	-496	-968
Change in Alternative from No Action Alternative:								
NODOS Alternative A	7,555	+898	+994	+867	4,323	+591	+670	+490
NODOS Alternative B	7,595	+937	+1,049	+951	4,370	+638	+722	+585
NODOS Alternative C	7,888	+1,231	+1,224	+1,139	4,614	+882	+826	+650

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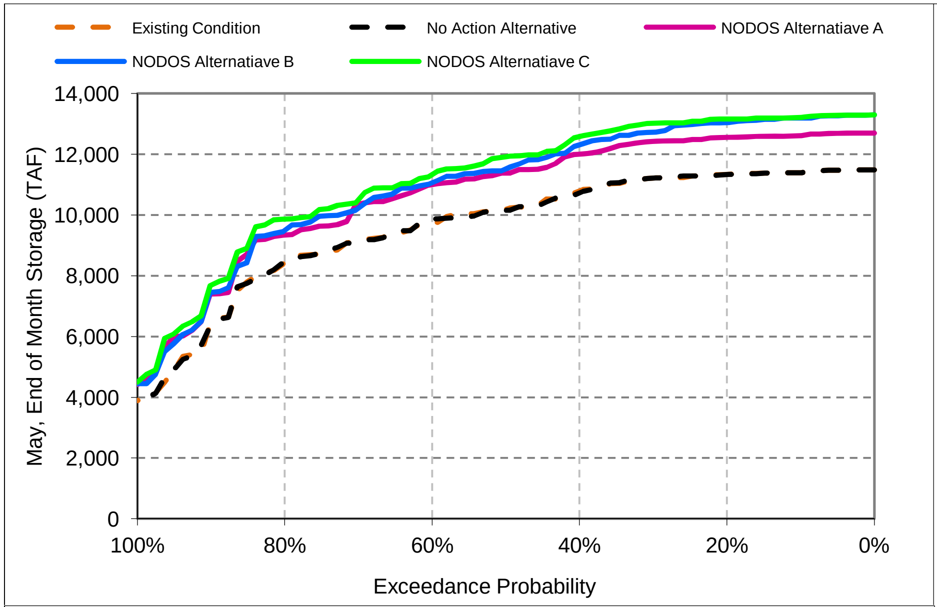
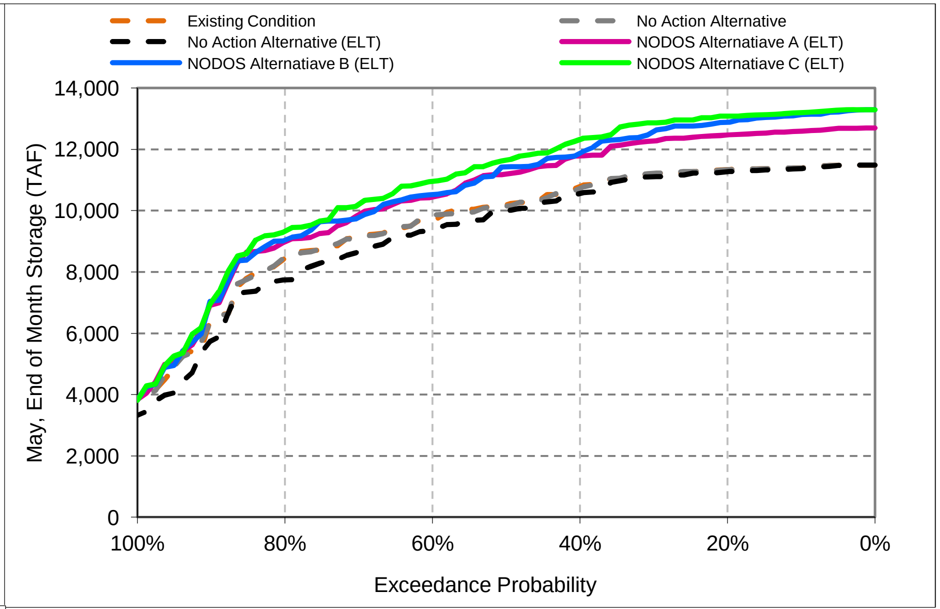




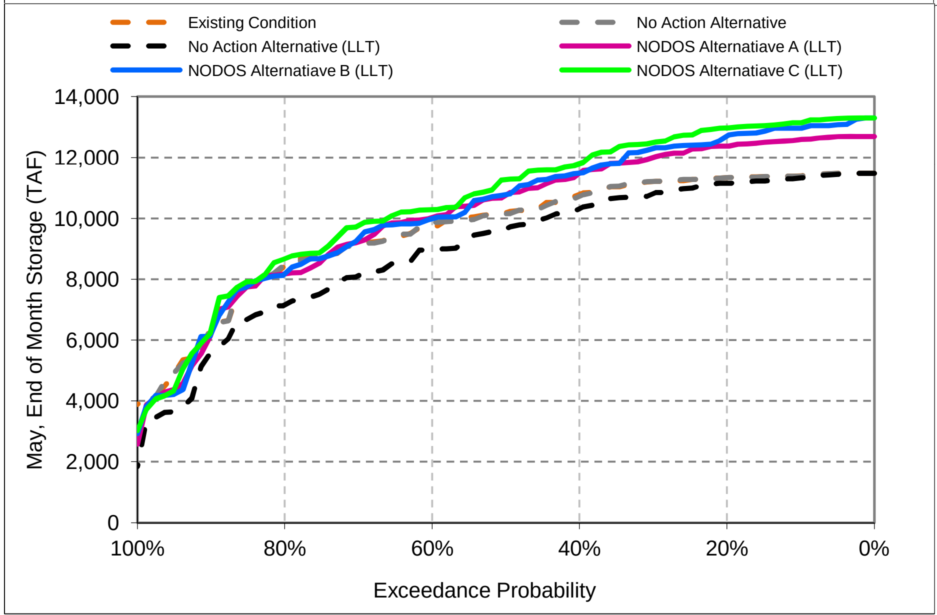


Figure 25B-31-1.
Total Trinity Lake, Shasta Lake, Lake Oroville,
Folsom Lake and Sites Reservoir,
May, End of Month Storage (TAF)
ELT and LLT trend

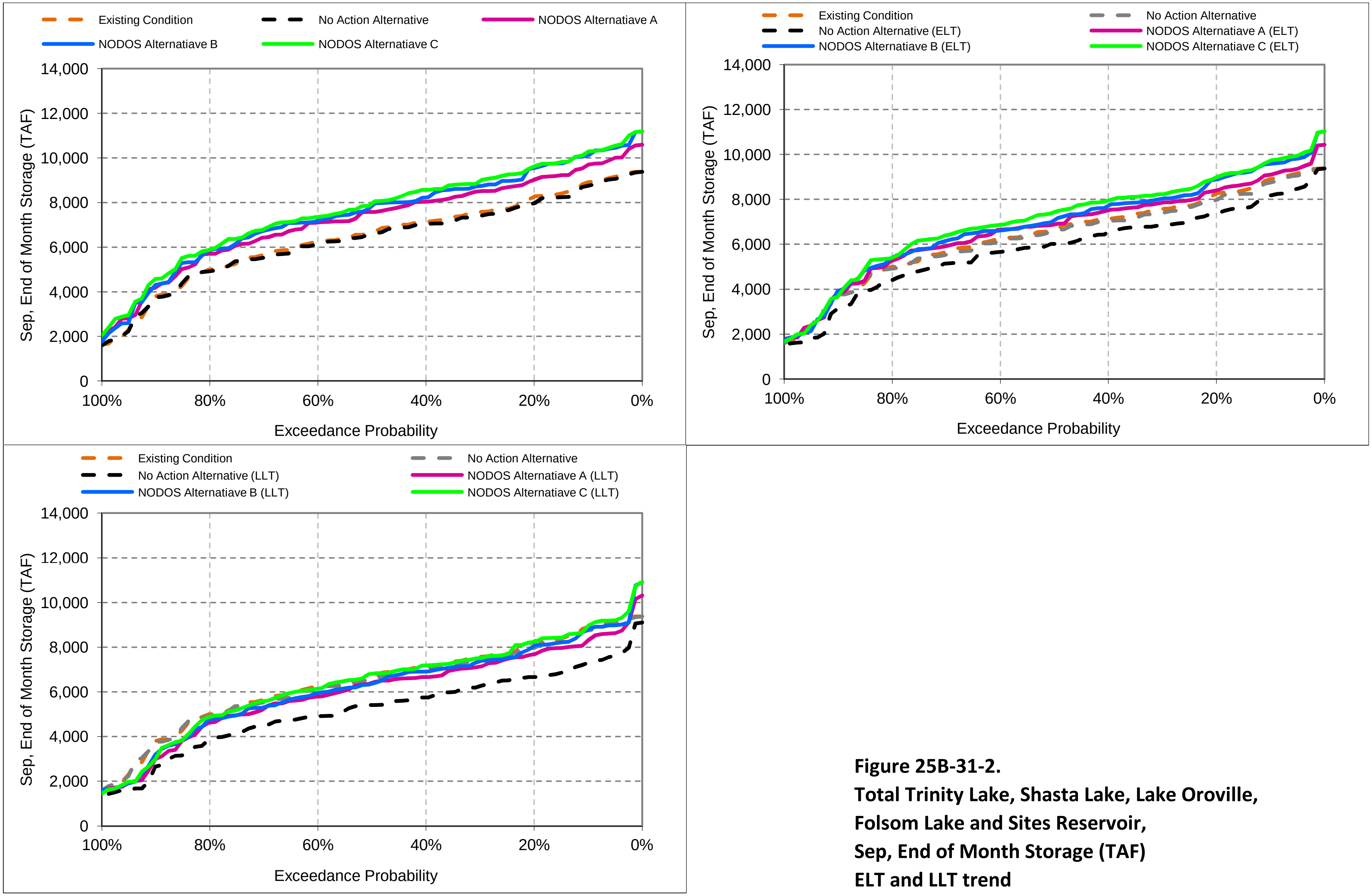


Figure 25B-31-2.
Total Trinity Lake, Shasta Lake, Lake Oroville,
Folsom Lake and Sites Reservoir,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-31-2.
Total Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake and Sites Reservoir
End of Month Storage (TAF)
LLT Sensitivity

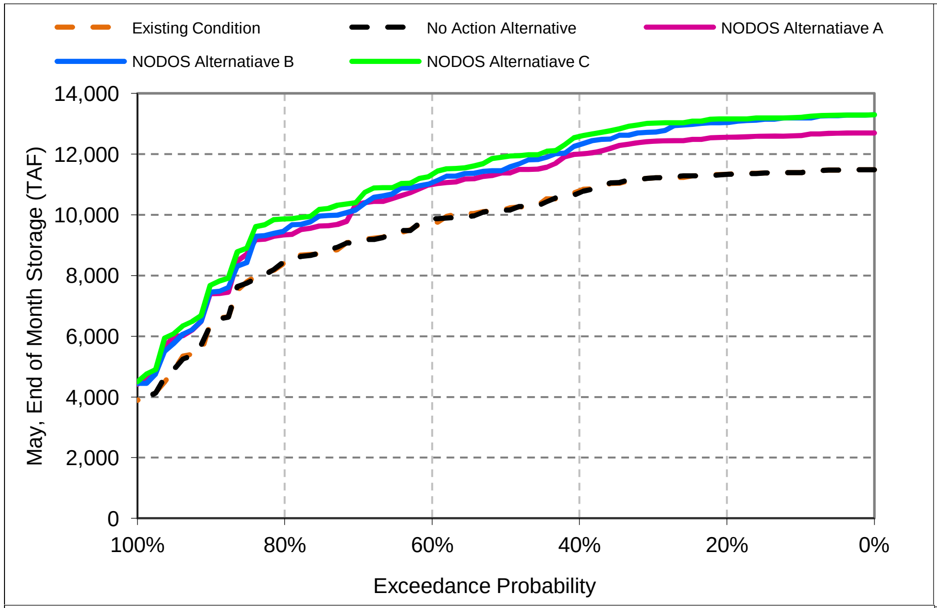
Long Term Average[1]

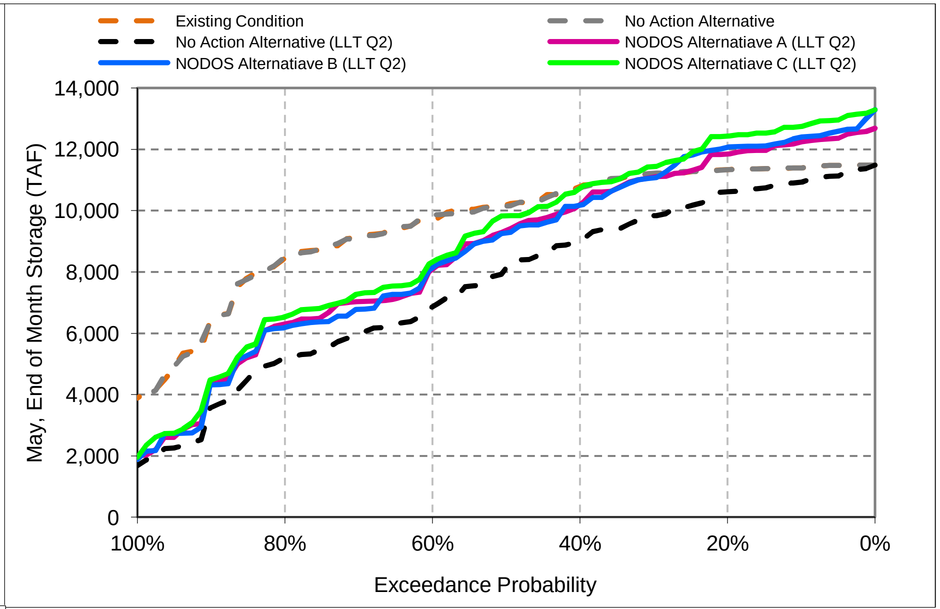
	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	9,596	--	-1,980	+358	6,331	--	-2,141	-273
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	10,706	+1,110	+1,075	+1,105	7,197	+867	+816	+850
NODOS Alternative B	10,972	+1,376	+1,097	+1,363	7,457	+1,127	+872	+1,110
NODOS Alternative C	11,180	+1,584	+1,441	+1,613	7,634	+1,304	+1,127	+1,318

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	11,395	--	-526	+41	8,528	--	-2,122	-405
Change in Alternative from No Action Alternative:								
NODOS Alternative A	12,608	+1,213	+1,244	+1,208	9,513	+985	+1,077	+1,030
NODOS Alternative B	13,161	+1,766	+1,463	+1,705	9,999	+1,471	+1,296	+1,459
NODOS Alternative C	13,208	+1,813	+1,814	+1,808	10,094	+1,566	+1,600	+1,605
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	10,820	--	-1,592	+272	7,112	--	-2,101	-455
Change in Alternative from No Action Alternative:								
NODOS Alternative A	12,026	+1,206	+1,203	+1,200	8,121	+1,009	+1,060	+959
NODOS Alternative B	12,345	+1,525	+1,196	+1,407	8,396	+1,284	+1,156	+1,174
NODOS Alternative C	12,574	+1,754	+1,577	+1,727	8,621	+1,509	+1,394	+1,461
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	9,569	--	-2,894	+497	5,971	--	-2,393	-350
Change in Alternative from No Action Alternative:								
NODOS Alternative A	10,697	+1,128	+1,129	+1,135	6,860	+890	+745	+890
NODOS Alternative B	10,847	+1,278	+1,048	+1,308	7,093	+1,122	+690	+1,130
NODOS Alternative C	11,114	+1,545	+1,420	+1,588	7,235	+1,265	+1,001	+1,335
Lower (100%-75% exceedence)								
Change in No Action Alternative:	6,657	--	-2,931	+625	3,732	--	-1,958	+107
Change in Alternative from No Action Alternative:								
NODOS Alternative A	7,555	+898	+732	+884	4,323	+591	+390	+528
NODOS Alternative B	7,595	+937	+683	+1,033	4,370	+638	+352	+682
NODOS Alternative C	7,888	+1,231	+959	+1,335	4,614	+882	+517	+877

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





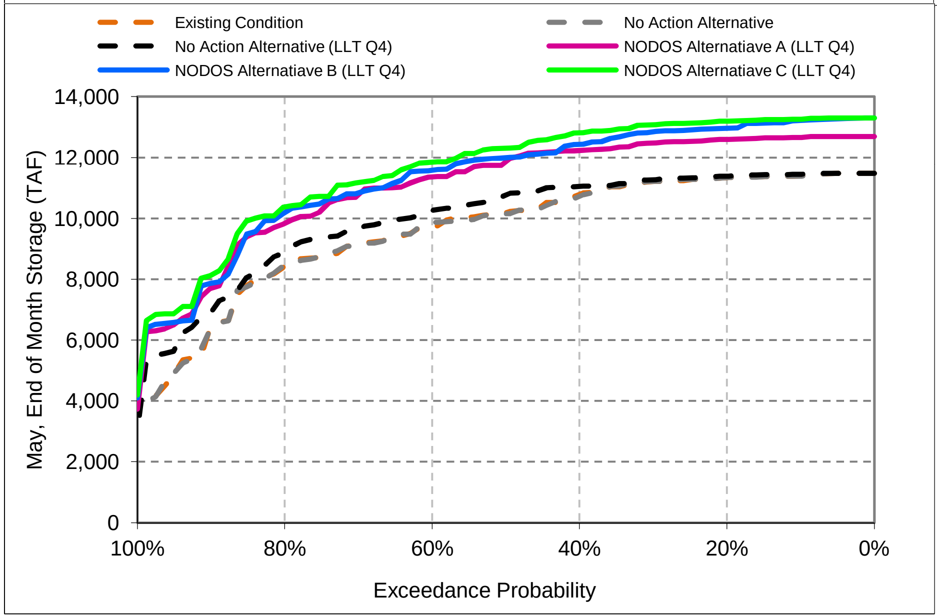
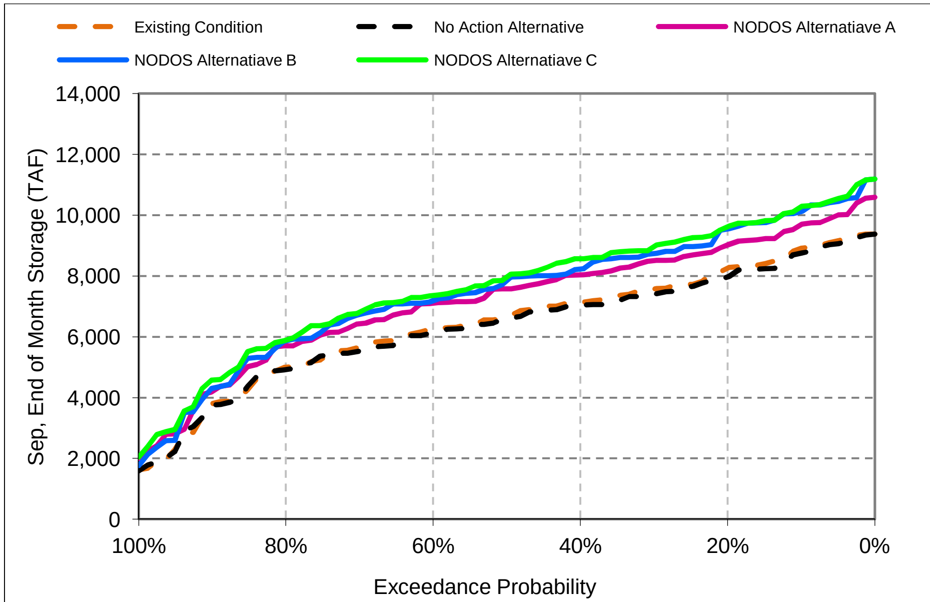
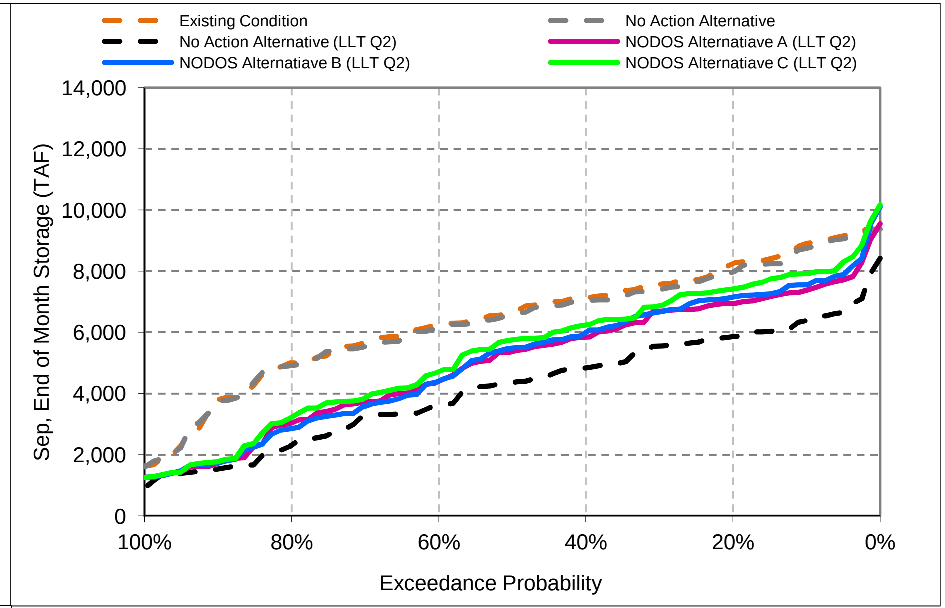


Figure 25B-31-3.
Total Trinity Lake, Shasta Lake, Lake Oroville, Folsom Lake and Sites Reservoir, May, End of Month Storage (TAF)
LLT Sensitivity





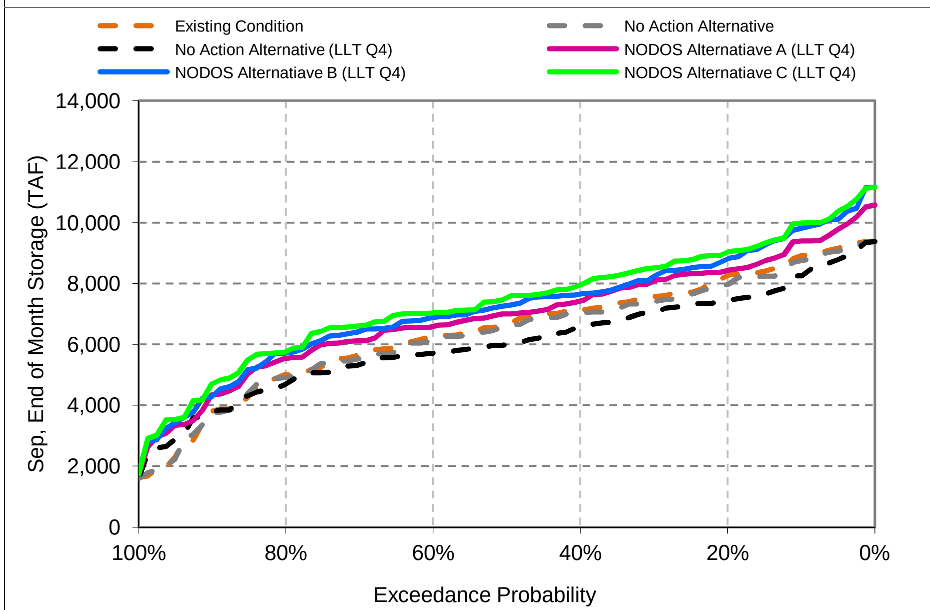


Figure 25B-31-4.
Total Trinity Lake, Shasta Lake, Lake Oroville,
Folsom Lake and Sites Reservoir,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-32-1.
Trinity Lake
End of Month Storage (TAF)
ELT and LLT trend

Long Term Average[1]

	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	1,810	--	-57	-123	1,374	--	-100	-211
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	1,843	+32	+35	+32	1,417	+43	+53	+39
NODOS Alternative B	1,846	+36	+37	+41	1,416	+42	+55	+47
NODOS Alternative C	1,851	+40	+33	+26	1,424	+51	+46	+29

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	2,341	--	-17	-58	1,949	--	-61	-188
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,348	+7	+4	+22	1,955	+6	+9	+43
NODOS Alternative B	2,350	+8	+8	+23	1,952	+3	+8	+35
NODOS Alternative C	2,350	+9	+5	+14	1,956	+7	+10	+35
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	2,097	--	-33	-107	1,587	--	-97	-227
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,116	+19	+9	+20	1,626	+39	+28	+25
NODOS Alternative B	2,123	+26	+11	+18	1,636	+49	+46	+38
NODOS Alternative C	2,124	+28	+12	+16	1,628	+41	+27	+16
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	1,740	--	-74	-157	1,239	--	-109	-216
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,789	+49	+51	+40	1,309	+69	+72	+41
NODOS Alternative B	1,781	+41	+49	+57	1,305	+66	+70	+58
NODOS Alternative C	1,792	+52	+51	+25	1,324	+84	+67	+17
Lower (100%-75% exceedence)								
Change in No Action Alternative:	1,075	--	-104	-171	722	--	-134	-213
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,129	+54	+77	+48	782	+59	+101	+48
NODOS Alternative B	1,141	+67	+78	+64	775	+52	+95	+57
NODOS Alternative C	1,147	+72	+63	+48	794	+72	+82	+46

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

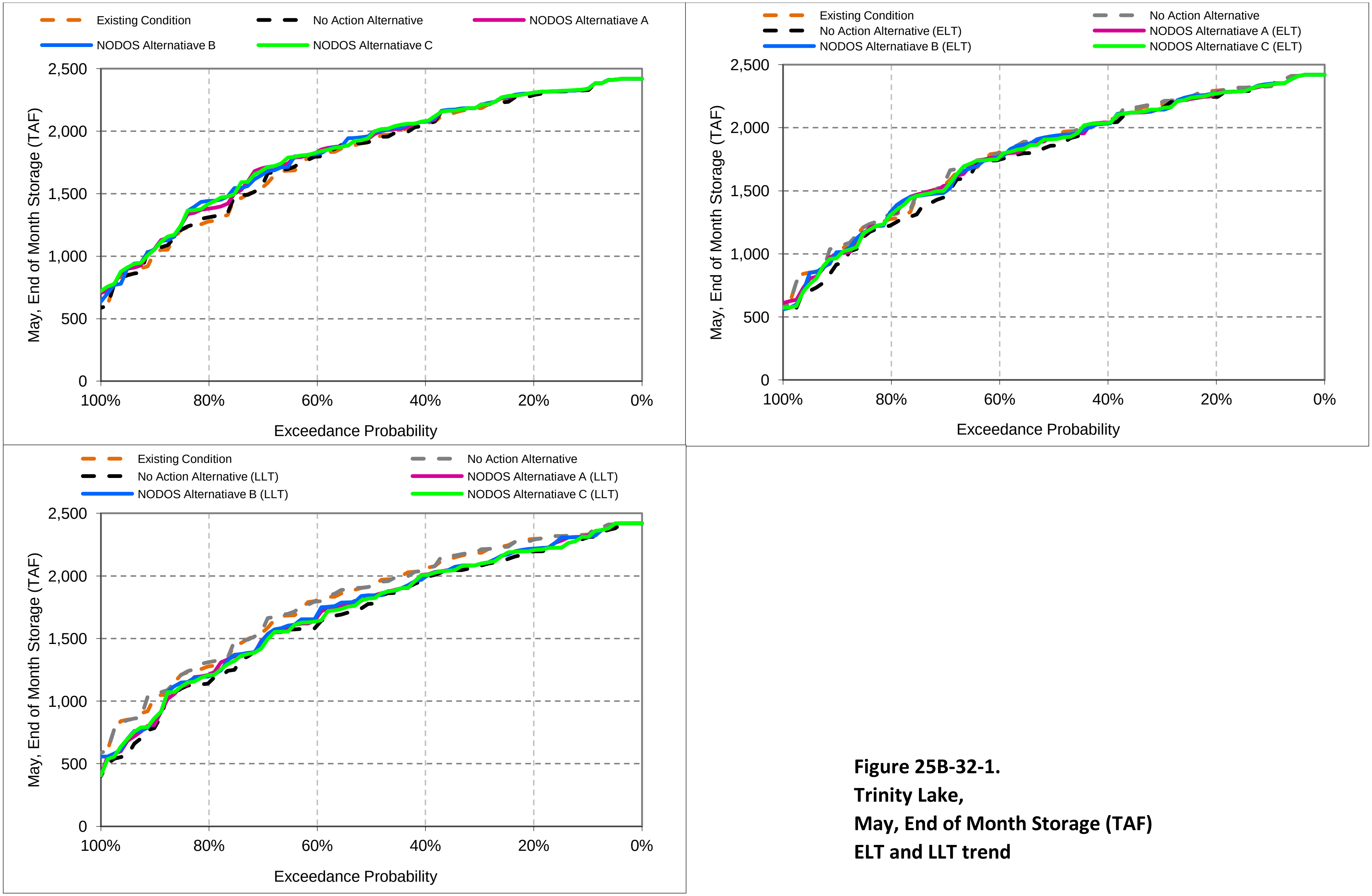
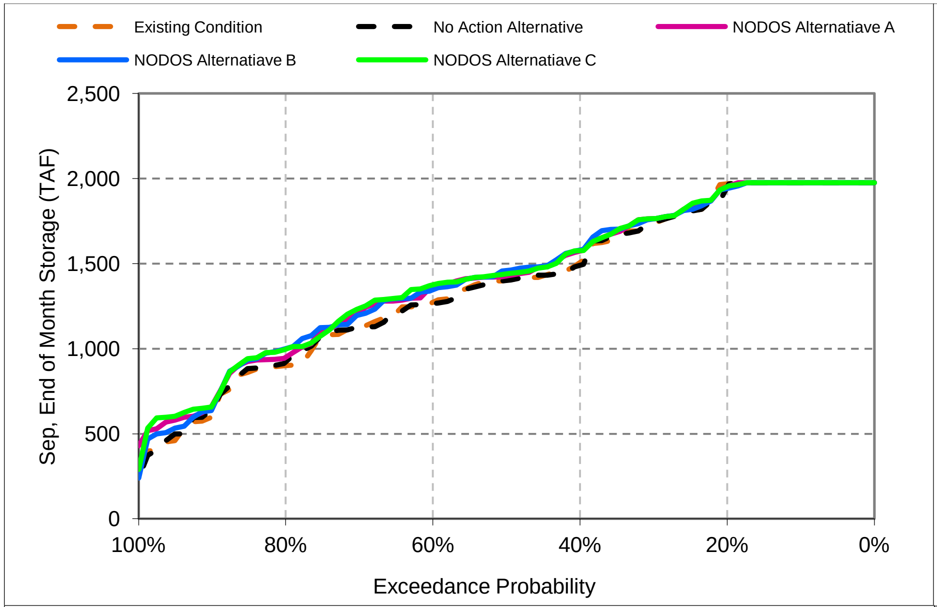
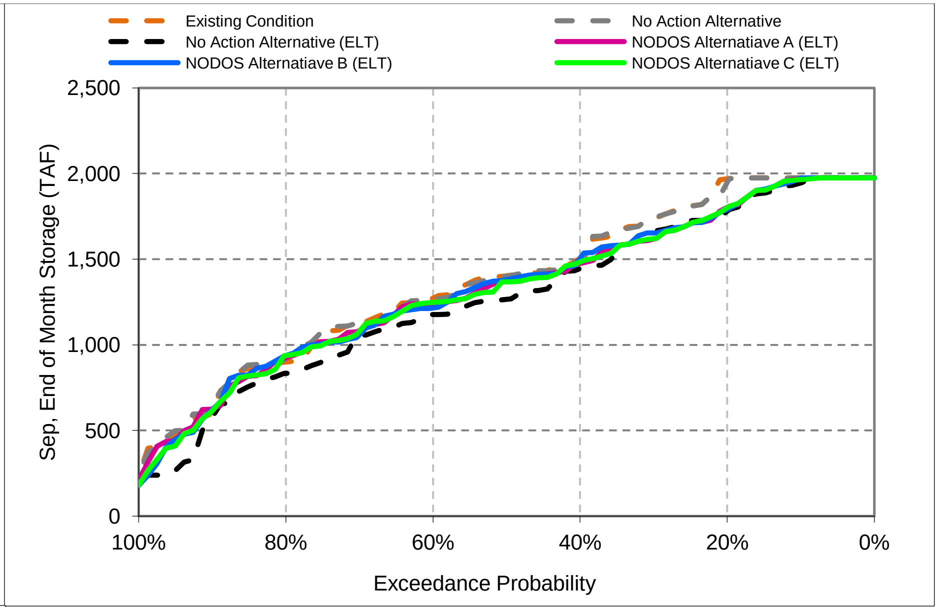


Figure 25B-32-1.
Trinity Lake,
May, End of Month Storage (TAF)
ELT and LLT trend





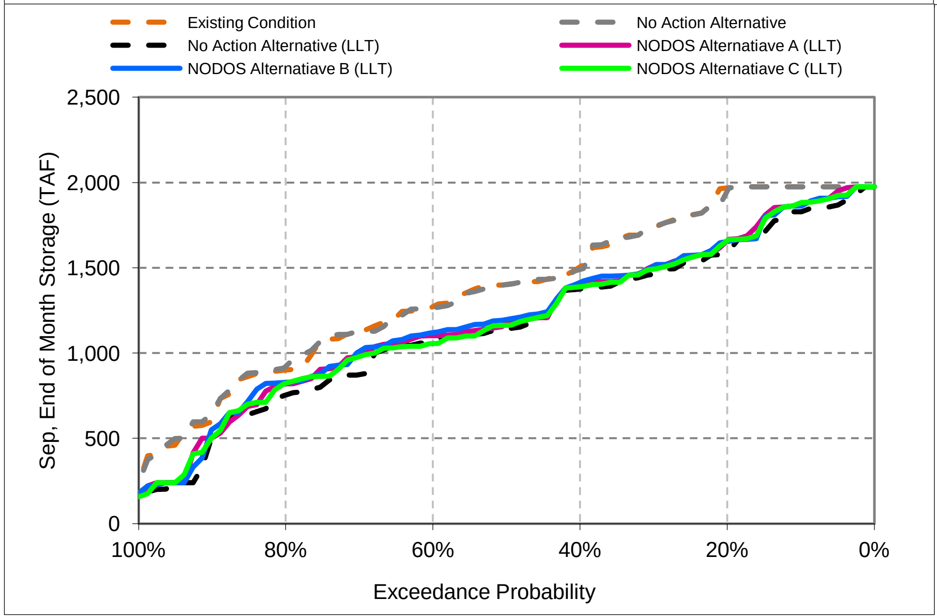


Figure 25B-32-2.
Trinity Lake,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-32-2.
Trinity Lake
End of Month Storage (TAF)
LLT Sensitivity

Long Term Average[1]

	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	1,810	--	-482	+132	1,374	--	-512	+40
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	1,843	+32	+33	+16	1,417	+43	+35	+36
NODOS Alternative B	1,846	+36	+40	+33	1,416	+42	+48	+52
NODOS Alternative C	1,851	+40	+31	+18	1,424	+51	+37	+37

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	2,341	--	-259	+36	1,949	--	-450	-32
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,348	+7	+21	+3	1,955	+6	+38	+25
NODOS Alternative B	2,350	+8	+27	+2	1,952	+3	+61	+10
NODOS Alternative C	2,350	+9	+17	+4	1,956	+7	+33	+22
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	2,097	--	-528	+98	1,587	--	-564	+13
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,116	+19	+44	+10	1,626	+39	+44	+38
NODOS Alternative B	2,123	+26	+67	+13	1,636	+49	+73	+42
NODOS Alternative C	2,124	+28	+36	+13	1,628	+41	+40	+44
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	1,740	--	-659	+160	1,239	--	-577	+63
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,789	+49	+41	+30	1,309	+69	+31	+63
NODOS Alternative B	1,781	+41	+50	+37	1,305	+66	+32	+85
NODOS Alternative C	1,792	+52	+44	+22	1,324	+84	+42	+52
Lower (100%-75% exceedence)								
Change in No Action Alternative:	1,075	--	-492	+234	722	--	-464	+116
Change in Alternative from No Action Alternative:								
NODOS Alternative A	1,129	+54	+26	+20	782	+59	+25	+19
NODOS Alternative B	1,141	+67	+17	+78	775	+52	+28	+72
NODOS Alternative C	1,147	+72	+28	+34	794	+72	+34	+33

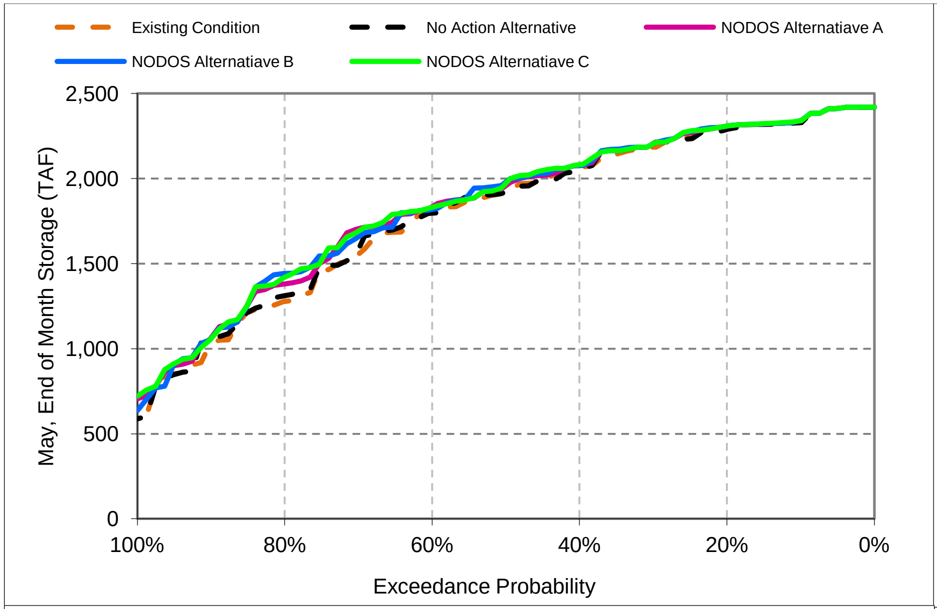
1 Based on CALSIM II 82-year simulation period

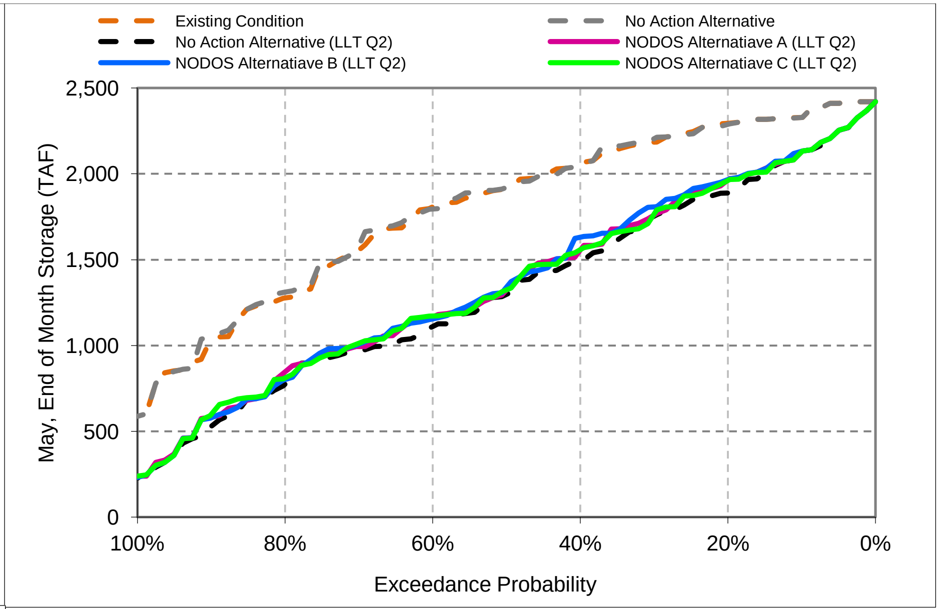
2 Current Climate and Sea Level

3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario

4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.





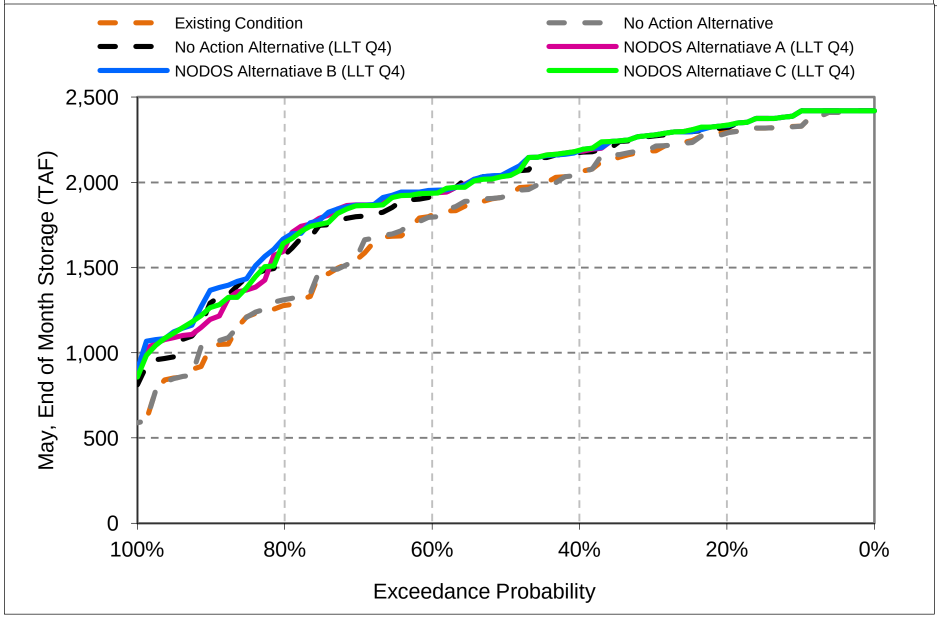


Figure 25B-32-3.
Trinity Lake,
May, End of Month Storage (TAF)
LLT Sensitivity

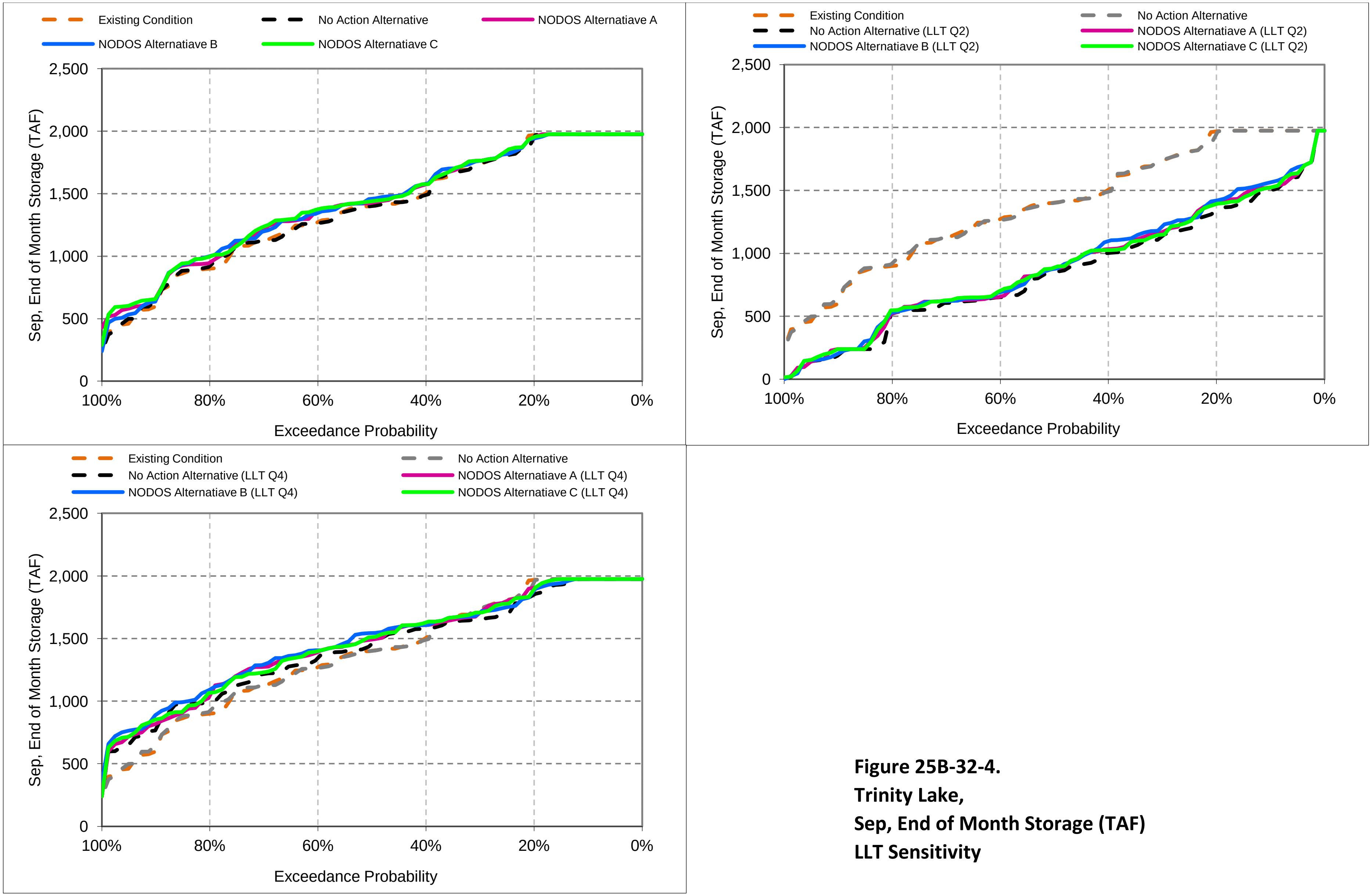


Figure 25B-32-4.
Trinity Lake,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-33-1.
Shasta Lake
End of Month Storage (TAF)
ELT and LLT trend

Long Term Average[1]

	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	3,944	--	-99	-228	2,630	--	-157	-385
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	3,994	+50	+97	+106	2,731	+101	+124	+121
NODOS Alternative B	4,013	+70	+124	+139	2,736	+106	+124	+136
NODOS Alternative C	4,007	+64	+86	+98	2,738	+108	+104	+100

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	4,552	--	+0	+0	3,332	--	-106	-314
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,552	+0	+0	-0	3,365	+33	+75	+122
NODOS Alternative B	4,552	+0	+0	+0	3,346	+15	+36	+73
NODOS Alternative C	4,552	+0	+0	-0	3,357	+25	+62	+110
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	4,487	--	-54	-150	3,022	--	-155	-406
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,487	+0	+26	+58	3,145	+123	+121	+161
NODOS Alternative B	4,512	+25	+53	+100	3,121	+99	+124	+176
NODOS Alternative C	4,492	+5	+20	+45	3,128	+106	+105	+161
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	3,996	--	-87	-272	2,655	--	-154	-405
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,036	+40	+117	+173	2,771	+116	+155	+108
NODOS Alternative B	4,081	+86	+152	+228	2,788	+133	+145	+154
NODOS Alternative C	4,049	+54	+113	+144	2,775	+120	+137	+37
Lower (100%-75% exceedence)								
Change in No Action Alternative:	2,769	--	-254	-490	1,532	--	-212	-418
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,925	+155	+241	+192	1,665	+133	+148	+95
NODOS Alternative B	2,936	+166	+287	+232	1,710	+177	+193	+143
NODOS Alternative C	2,961	+192	+207	+202	1,713	+181	+112	+92

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

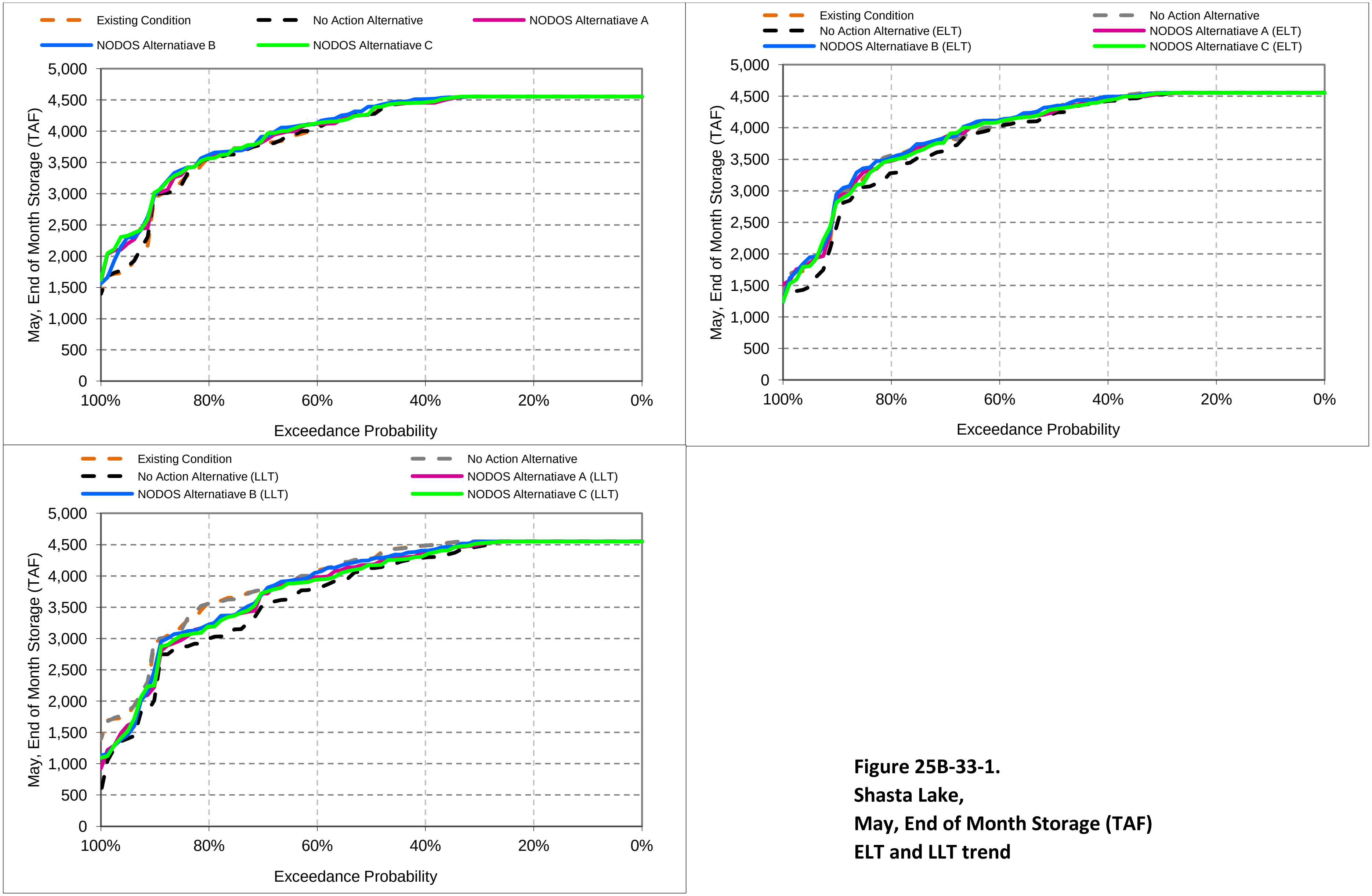


Figure 25B-33-1.
Shasta Lake,
May, End of Month Storage (TAF)
ELT and LLT trend

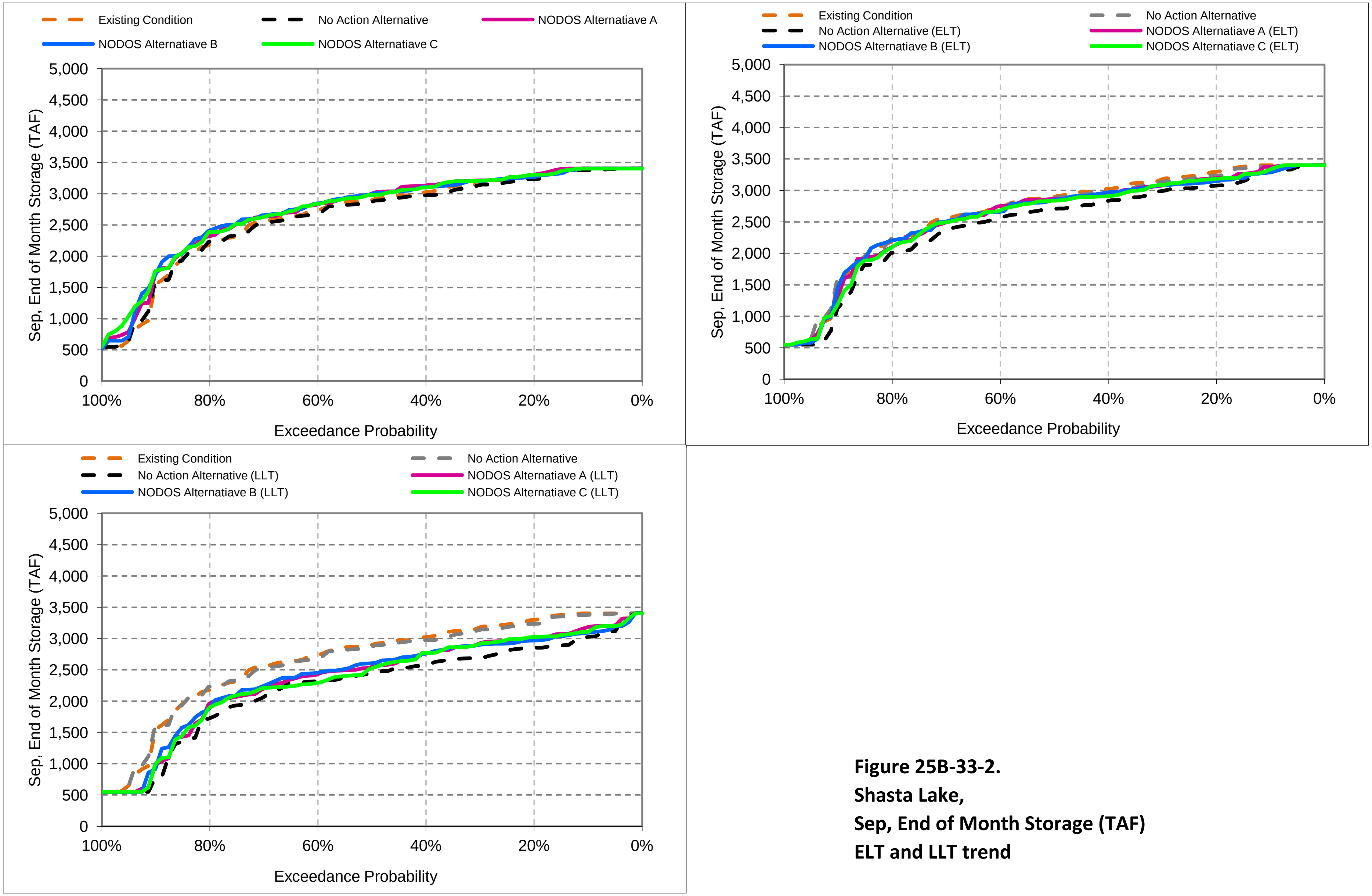


Figure 25B-33-2.
Shasta Lake,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-33-2.
Shasta Lake
End of Month Storage (TAF)
LLT Sensitivity

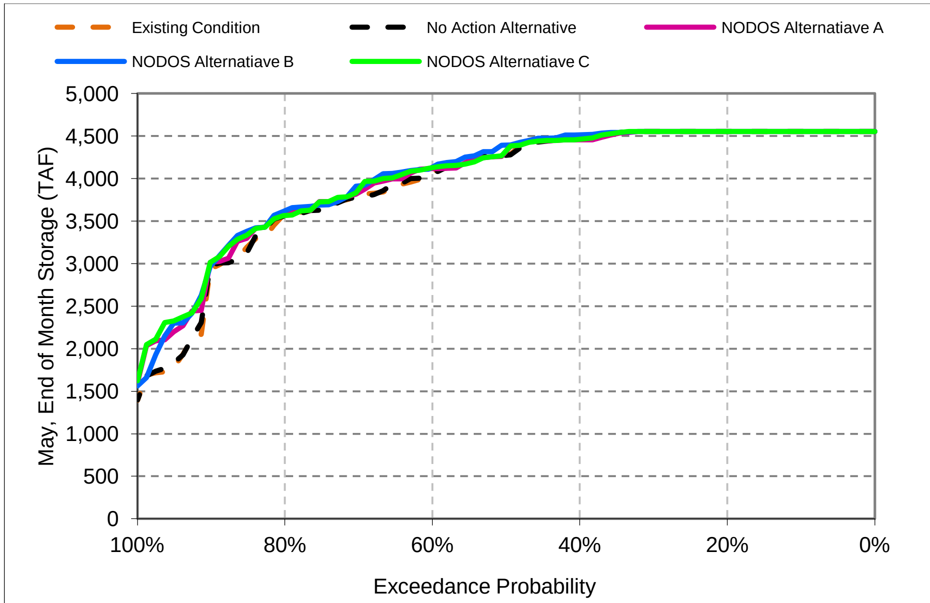
Long Term Average[1]

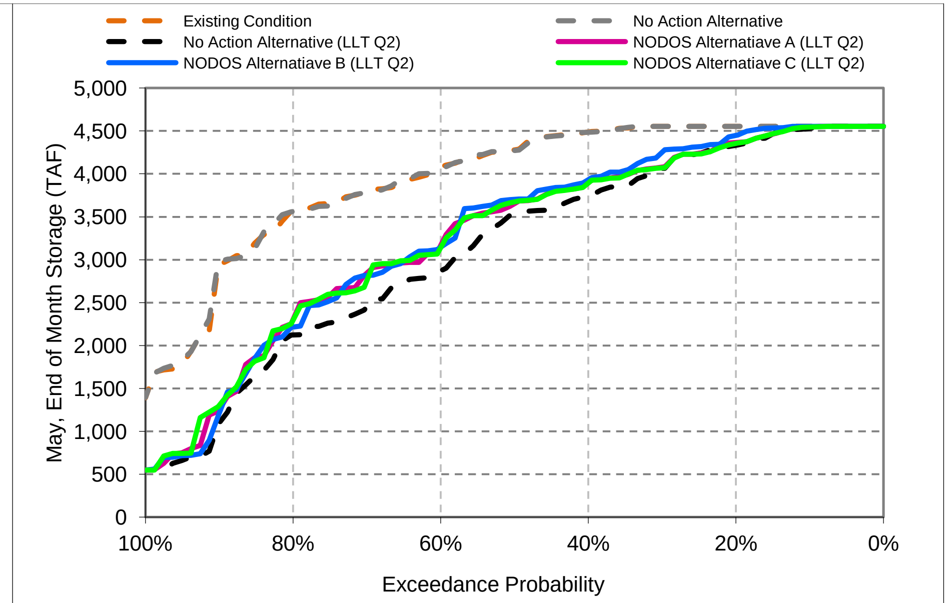
	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	3,944	--	-825	+162	2,630	--	-837	-75
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	3,994	+50	+144	+48	2,731	+101	+175	+86
NODOS Alternative B	4,013	+70	+163	+99	2,736	+106	+175	+107
NODOS Alternative C	4,007	+64	+147	+77	2,738	+108	+168	+106

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	4,552	--	-95	+0	3,332	--	-582	-89
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,552	+0	+9	+0	3,365	+33	+173	+67
NODOS Alternative B	4,552	+0	+47	+0	3,346	+15	+178	+43
NODOS Alternative C	4,552	+0	+6	+0	3,357	+25	+184	+66
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	4,487	--	-650	+52	3,022	--	-764	-162
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,487	+0	+104	+9	3,145	+123	+211	+97
NODOS Alternative B	4,512	+25	+171	+13	3,121	+99	+222	+88
NODOS Alternative C	4,492	+5	+100	+10	3,128	+106	+181	+85
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	3,996	--	-1,156	+257	2,655	--	-1,119	-172
Change in Alternative from No Action Alternative:								
NODOS Alternative A	4,036	+40	+294	+73	2,771	+116	+241	+124
NODOS Alternative B	4,081	+86	+314	+141	2,788	+133	+235	+171
NODOS Alternative C	4,049	+54	+288	+76	2,775	+120	+233	+128
Lower (100%-75% exceedence)								
Change in No Action Alternative:	2,769	--	-1,407	+340	1,532	--	-893	+116
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,925	+155	+176	+107	1,665	+133	+78	+57
NODOS Alternative B	2,936	+166	+127	+239	1,710	+177	+70	+128
NODOS Alternative C	2,961	+192	+198	+220	1,713	+181	+77	+144

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





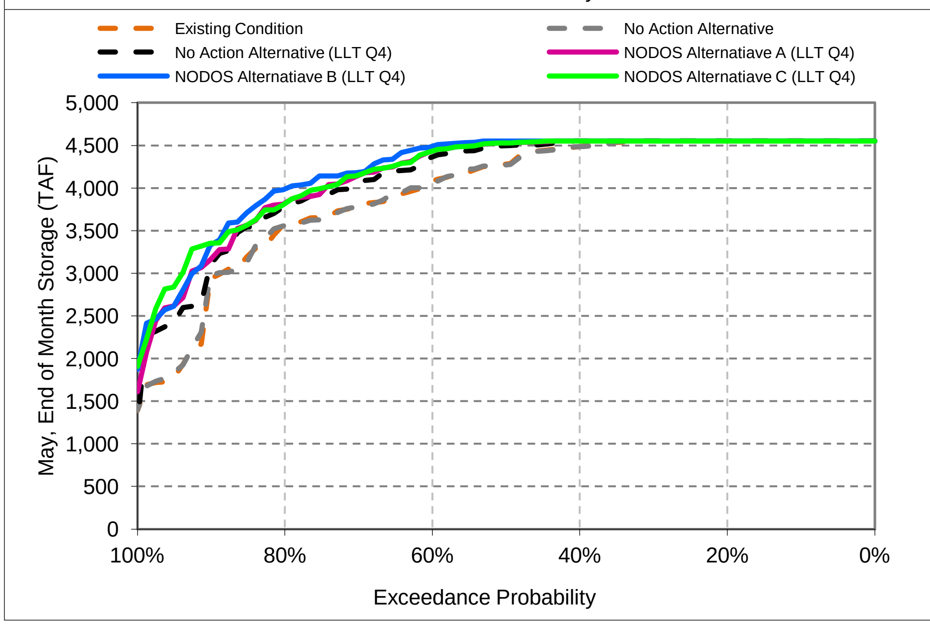


Figure 25B-33-3.
Shasta Lake,
May, End of Month Storage (TAF)
LLT Sensitivity

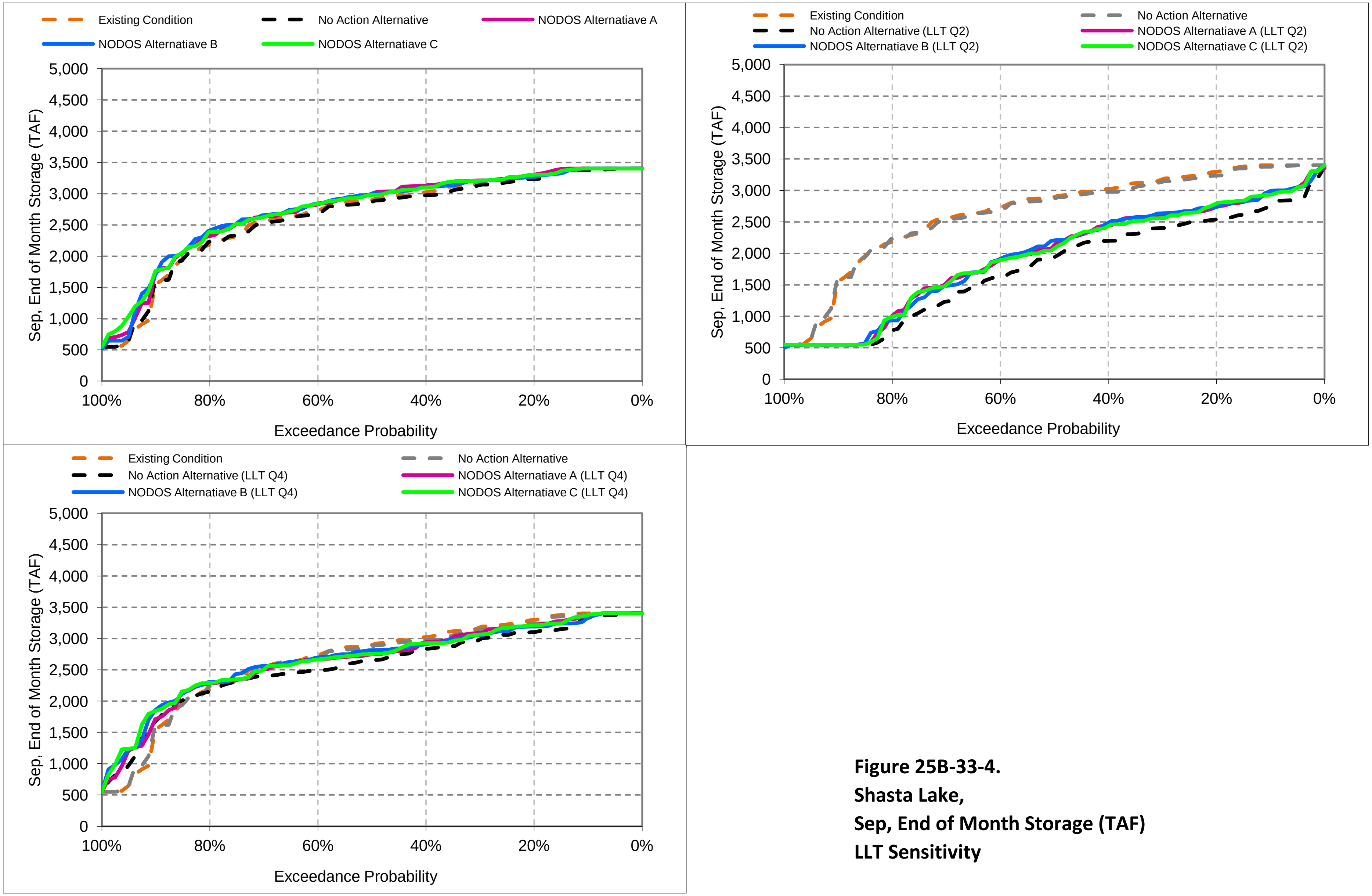


Figure 25B-33-4.
Shasta Lake,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-34-1.
Sacramento River below Keswick Reservoir
Monthly Flow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	6,427	--	+151	+96	9,014	--	+460	+683	8,551	--	-254	-150	10,610	--	-126	+40
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	6,742	+316	+86	+60	9,264	+250	+261	+281	8,194	-358	-278	-416	10,364	-245	-182	-59
NODOS Alternative B	6,770	+344	+80	+99	9,253	+239	+260	+286	8,089	-462	-376	-506	10,492	-117	-28	+32
NODOS Alternative C	6,737	+311	+19	+76	9,228	+214	+242	+209	8,176	-375	-291	-443	10,426	-184	-72	+35

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	10,036	--	+795	+160	19,484	--	+1,353	+2,096	11,053	--	-483	-409	12,758	--	-7	+414
Change in Alternative from No Action Alternative:																
NODOS Alternative A	10,423	+387	+389	+581	19,715	+231	+504	+645	10,815	-239	-218	-384	12,253	-505	-350	-468
NODOS Alternative B	10,457	+421	+372	+602	19,645	+161	+563	+817	10,817	-236	-210	-473	12,408	-349	-157	-278
NODOS Alternative C	10,442	+406	+359	+540	19,680	+197	+529	+662	10,832	-221	-205	-314	12,261	-497	-289	-435
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	6,472	--	-12	+155	8,829	--	+560	+674	8,566	--	-112	+198	11,129	--	+127	+521
Change in Alternative from No Action Alternative:																
NODOS Alternative A	6,930	+457	+100	+74	9,029	+200	+437	+377	8,168	-398	-351	-400	10,666	-463	-471	-180
NODOS Alternative B	6,977	+505	+241	+184	9,013	+184	+415	+194	7,870	-696	-550	-469	10,917	-212	-280	-41
NODOS Alternative C	7,095	+623	+247	+246	8,979	+150	+419	+194	8,086	-480	-415	-509	10,815	-314	-289	-6
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	4,969	--	+25	+214	4,211	--	-68	-104	7,894	--	-192	-131	9,990	--	-213	+104
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,346	+377	-181	-194	4,562	+351	+94	+95	7,377	-517	-387	-290	9,811	-178	-65	+195
NODOS Alternative B	5,414	+445	-263	-249	4,536	+326	+44	+86	7,236	-657	-569	-513	10,051	+61	+88	+239
NODOS Alternative C	5,388	+419	-379	-337	4,517	+306	+22	-30	7,357	-537	-425	-410	9,951	-39	+128	+394
Lower (100%-75% exceedence)																
Change in No Action Alternative:	4,049	--	-238	-149	3,294	--	-26	+28	6,662	--	-220	-241	8,558	--	-405	-851
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,086	+37	+20	-246	3,515	+221	+10	+3	6,375	-287	-166	-581	8,715	+157	+149	+222
NODOS Alternative B	4,049	+0	-43	-167	3,582	+288	+16	+33	6,383	-280	-194	-569	8,593	+35	+230	+213
NODOS Alternative C	3,839	-210	-168	-169	3,499	+205	-2	-3	6,387	-275	-131	-540	8,672	+114	+162	+203

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2 Current Climate and Sea Level
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4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

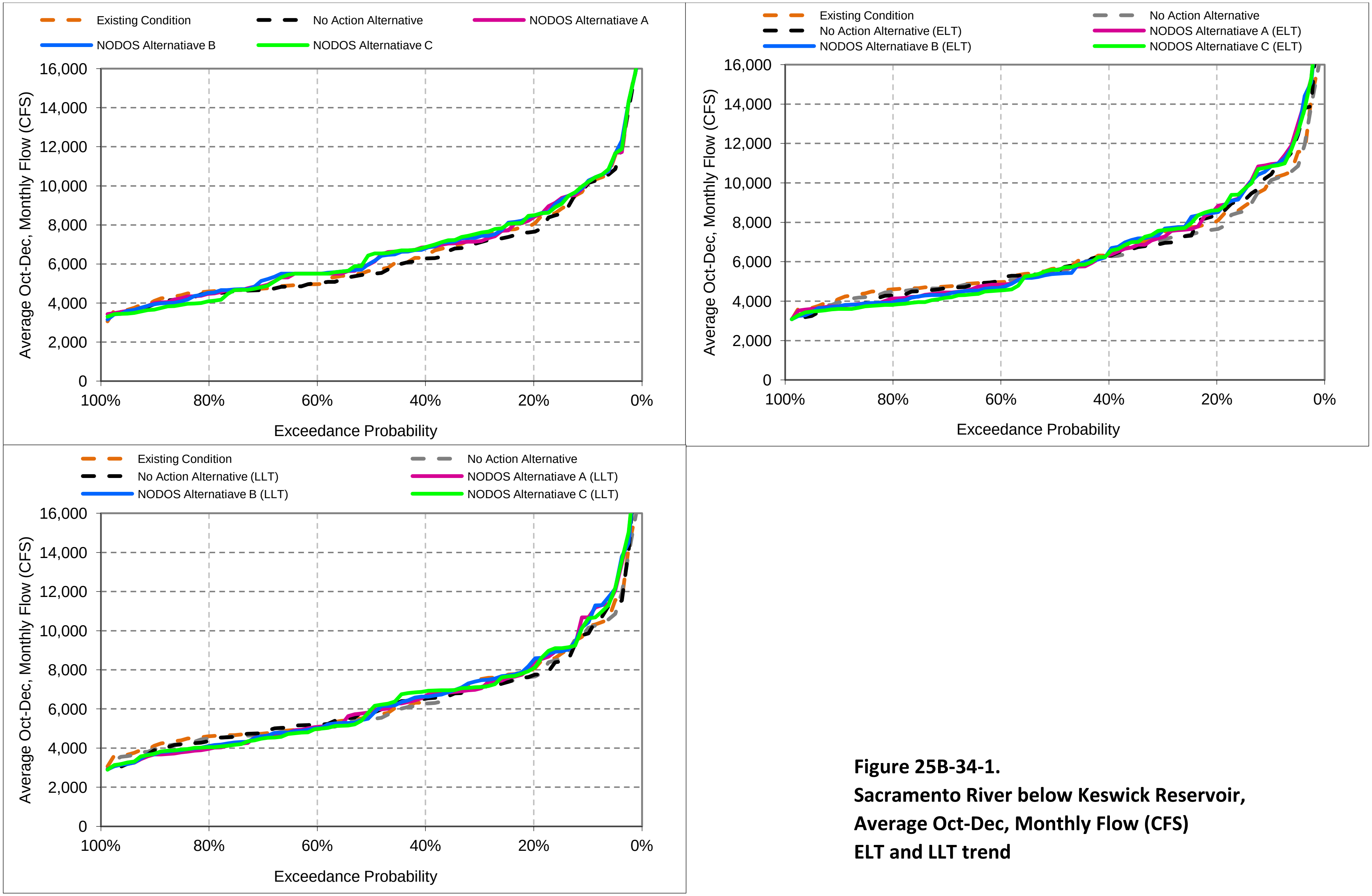


Figure 25B-34-1.
Sacramento River below Keswick Reservoir,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend

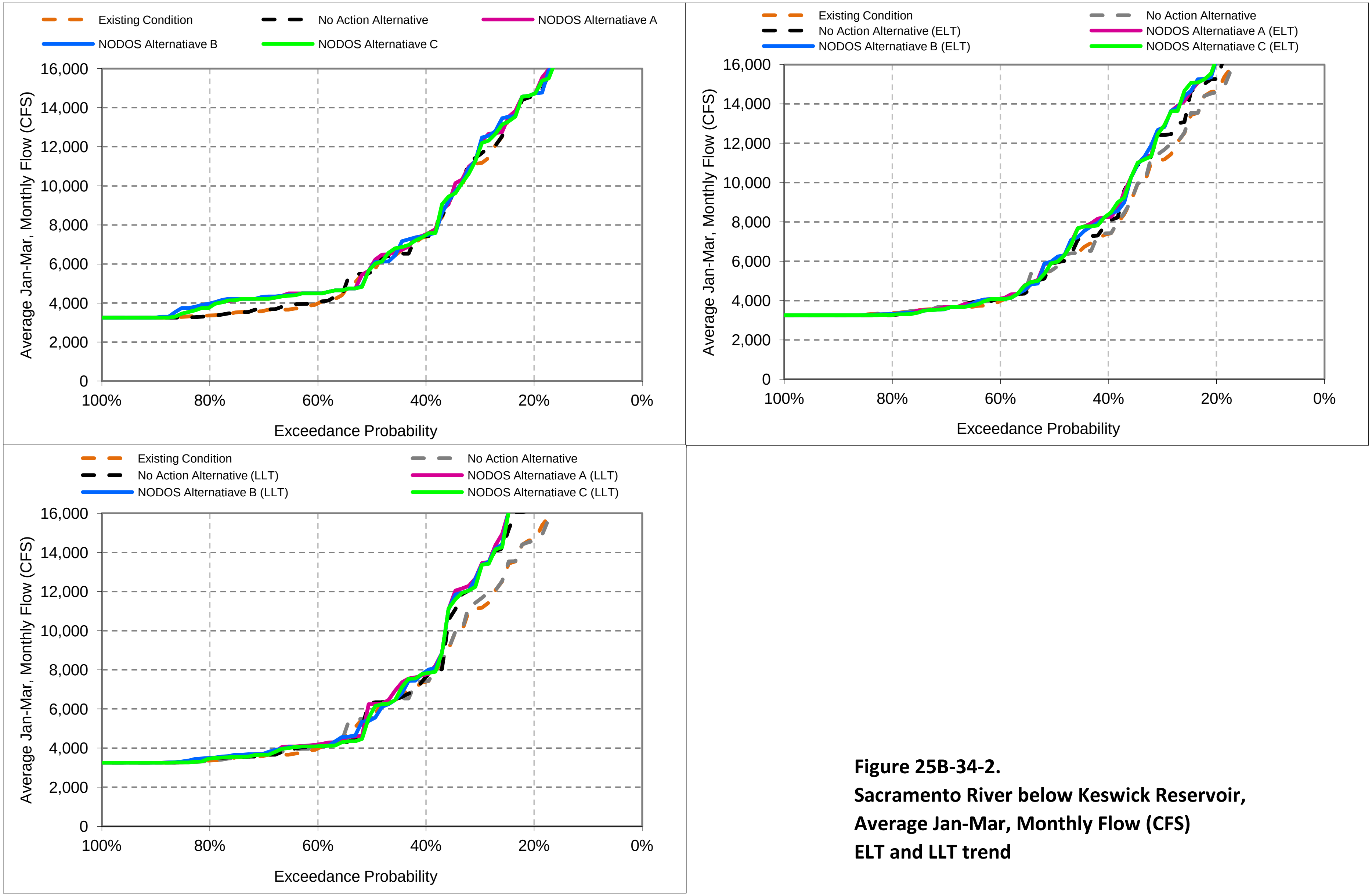
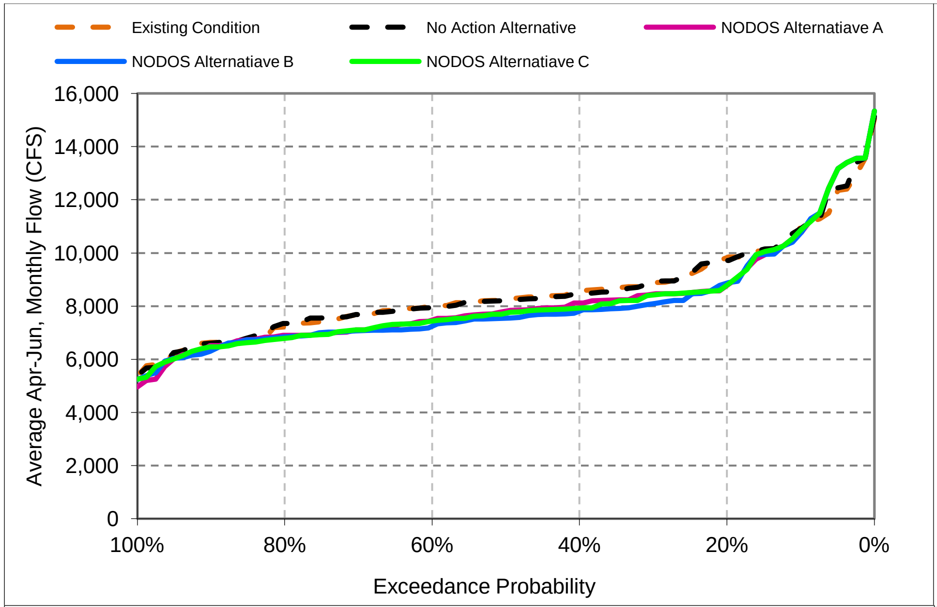
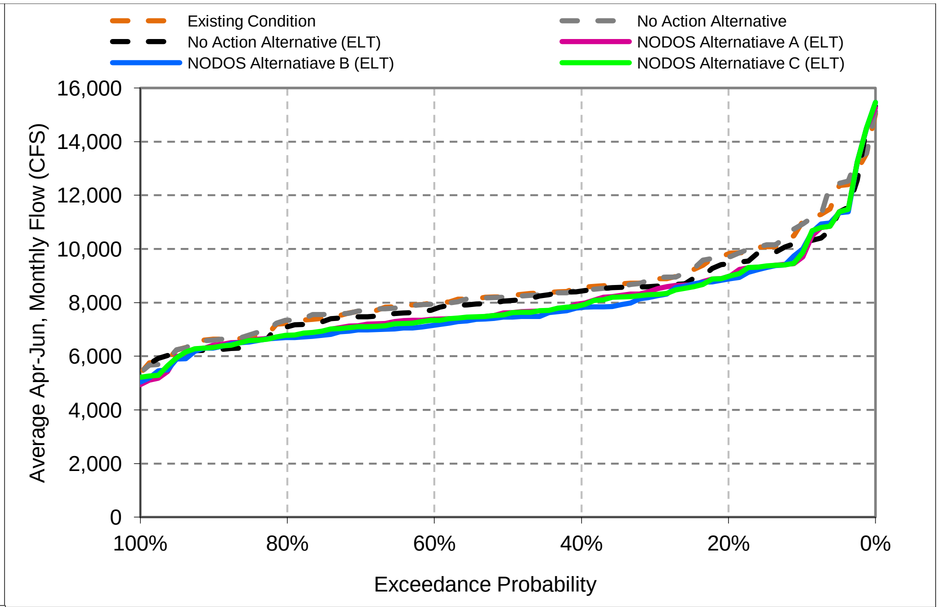


Figure 25B-34-2.
Sacramento River below Keswick Reservoir,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend





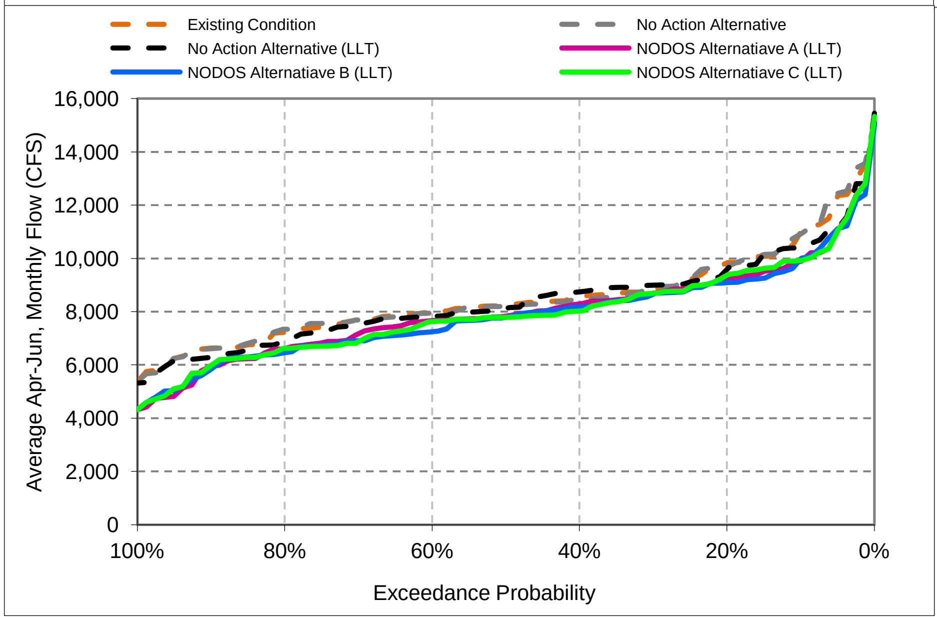
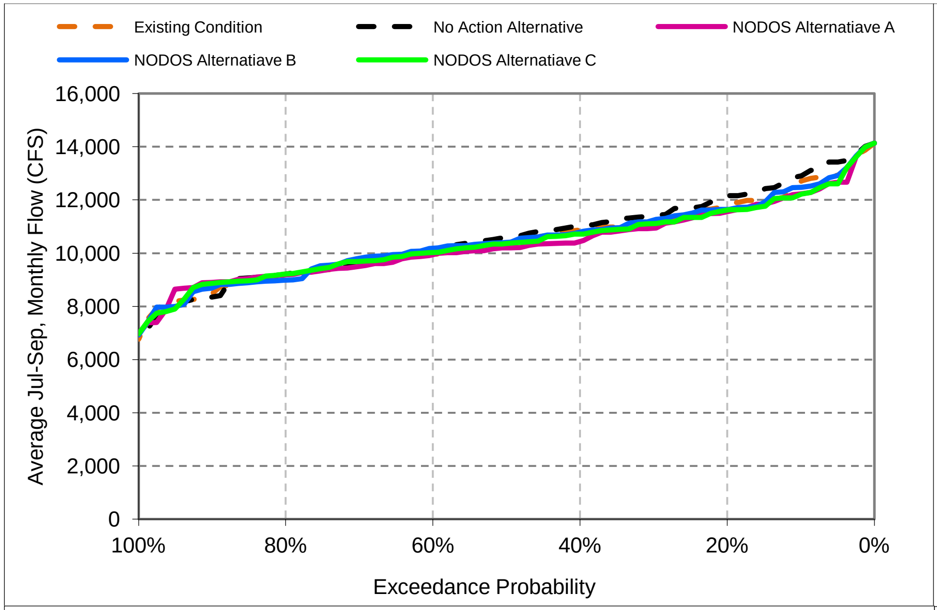
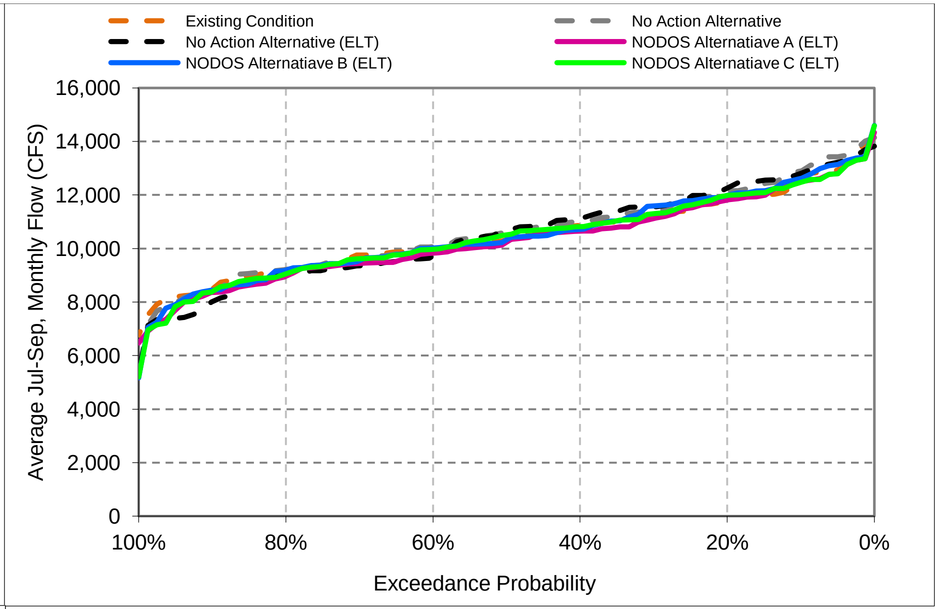


Figure 25B-34-3.
Sacramento River below Keswick Reservoir,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





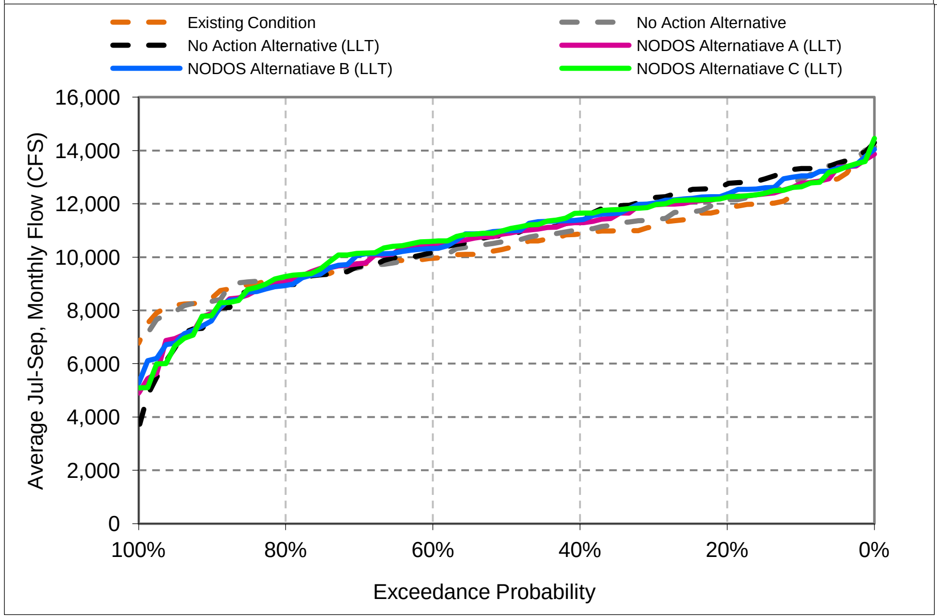


Figure 25B-34-4.
Sacramento River below Keswick Reservoir,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-34-2.
Sacramento River below Keswick Reservoir
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	6,427	--	-1,209	+1,198	9,014	--	-1,749	+3,242	8,551	--	-585	+930	10,610	--	-1,322	+1,040
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	6,742	+316	+53	+71	9,264	+250	+300	+269	8,194	-358	-405	-412	10,364	-245	-68	-113
NODOS Alternative B	6,770	+344	+74	+77	9,253	+239	+371	+275	8,089	-462	-489	-413	10,492	-117	-79	-66
NODOS Alternative C	6,737	+311	+40	+60	9,228	+214	+277	+256	8,176	-375	-427	-429	10,426	-184	-47	-45

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	10,036	--	-2,040	+2,519	19,484	--	-3,335	+6,908	11,053	--	-1,041	+1,566	12,758	--	-122	+787
Change in Alternative from No Action Alternative:																
NODOS Alternative A	10,423	+387	+465	+298	19,715	+231	+980	+519	10,815	-239	-303	-333	12,253	-505	-641	-293
NODOS Alternative B	10,457	+421	+439	+210	19,645	+161	+965	+645	10,817	-236	-499	-259	12,408	-349	-540	-301
NODOS Alternative C	10,442	+406	+527	+274	19,680	+197	+932	+608	10,832	-221	-246	-248	12,261	-497	-589	-333
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	6,472	--	-1,275	+845	8,829	--	-3,221	+4,527	8,566	--	-163	+873	11,129	--	-714	+1,148
Change in Alternative from No Action Alternative:																
NODOS Alternative A	6,930	+457	-253	+213	9,029	+200	+228	+389	8,168	-398	-323	-243	10,666	-463	-128	-277
NODOS Alternative B	6,977	+505	-219	+340	9,013	+184	+448	+359	7,870	-696	-393	-365	10,917	-212	-207	-272
NODOS Alternative C	7,095	+623	-307	+384	8,979	+150	+228	+359	8,086	-480	-334	-362	10,815	-314	-19	-220
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	4,969	--	-697	+908	4,211	--	-401	+1,399	7,894	--	-414	+777	9,990	--	-1,419	+1,170
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,346	+377	-166	-145	4,562	+351	-22	+268	7,377	-517	-365	-486	9,811	-178	+258	-23
NODOS Alternative B	5,414	+445	-110	-144	4,536	+326	+56	+141	7,236	-657	-530	-506	10,051	+61	+293	-6
NODOS Alternative C	5,388	+419	-192	-130	4,517	+306	-63	+137	7,357	-537	-411	-546	9,951	-39	+213	+69
Lower (100%-75% exceedence)																
Change in No Action Alternative:	4,049	--	-783	+454	3,294	--	-47	+107	6,662	--	-694	+493	8,558	--	-3,010	+1,067
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,086	+37	+147	-94	3,515	+221	-5	-94	6,375	-287	-625	-580	8,715	+157	+253	+138
NODOS Alternative B	4,049	+0	+169	-104	3,582	+288	+4	-49	6,383	-280	-531	-525	8,593	+35	+150	+309
NODOS Alternative C	3,839	-210	+109	-300	3,499	+205	-8	-80	6,387	-275	-714	-564	8,672	+114	+219	+302

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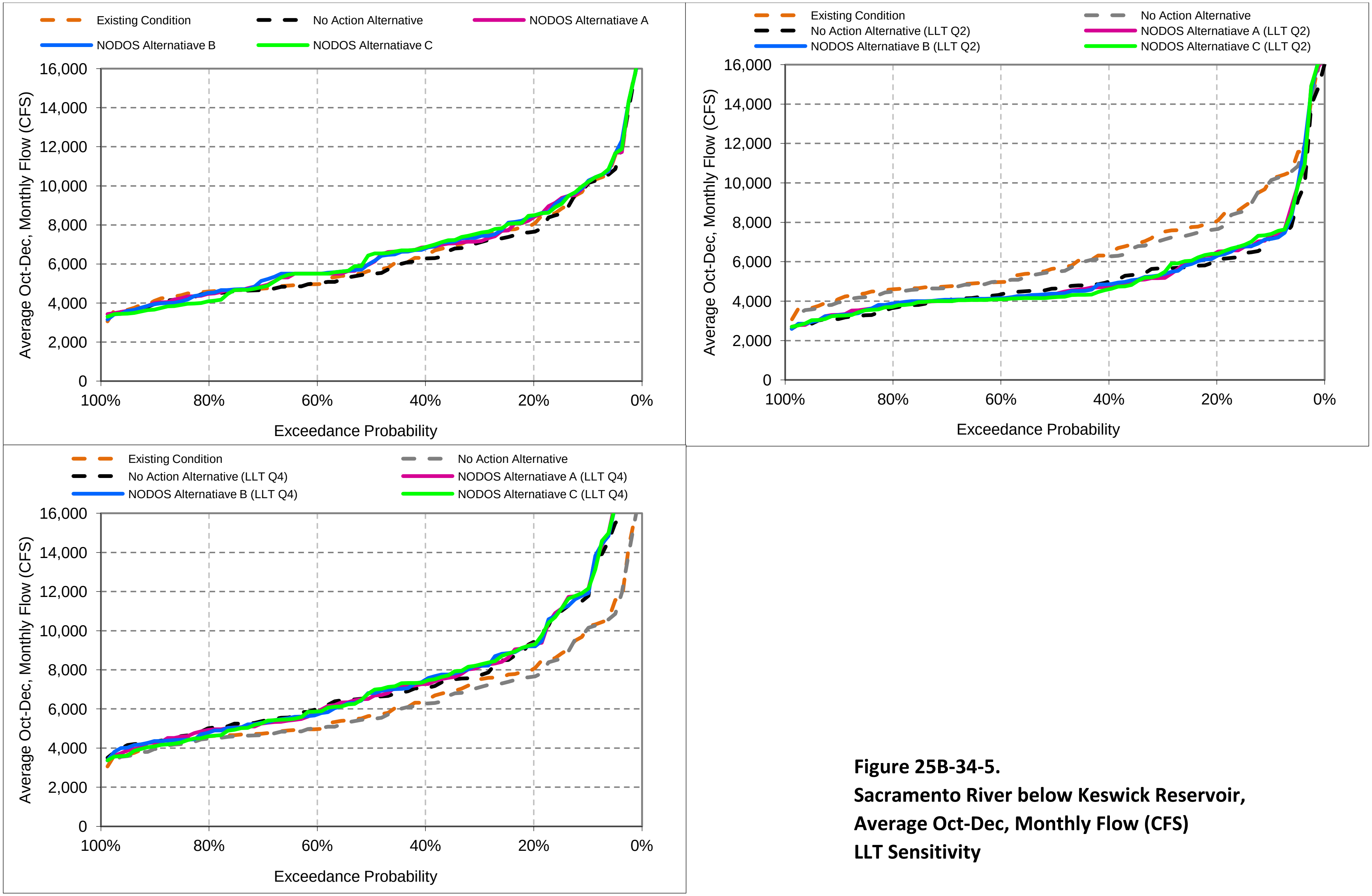
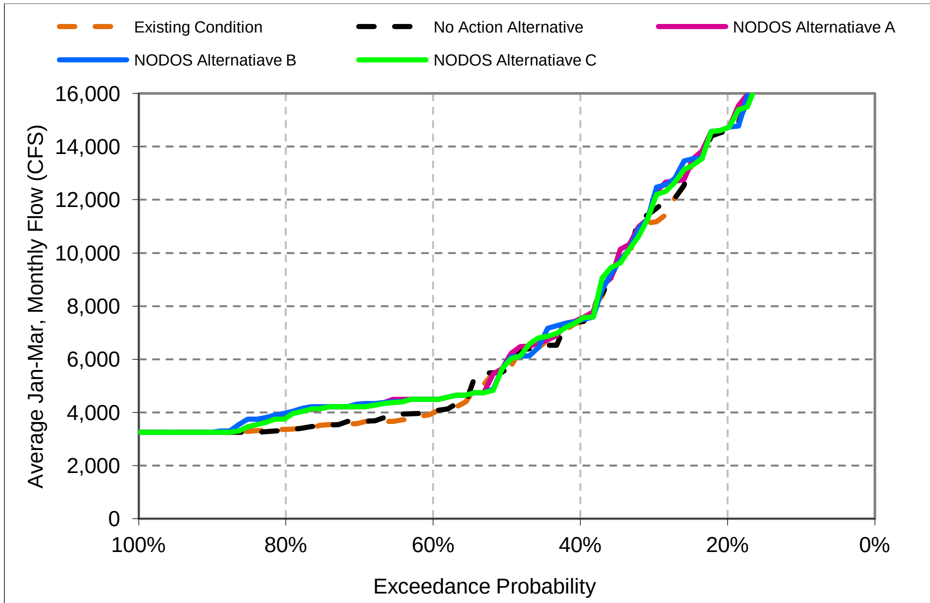
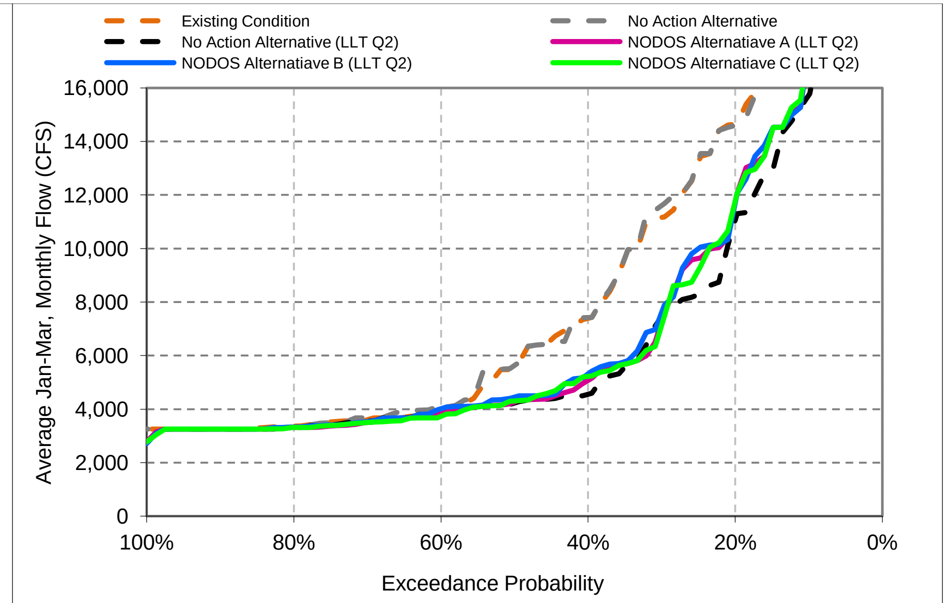


Figure 25B-34-5.
Sacramento River below Keswick Reservoir,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





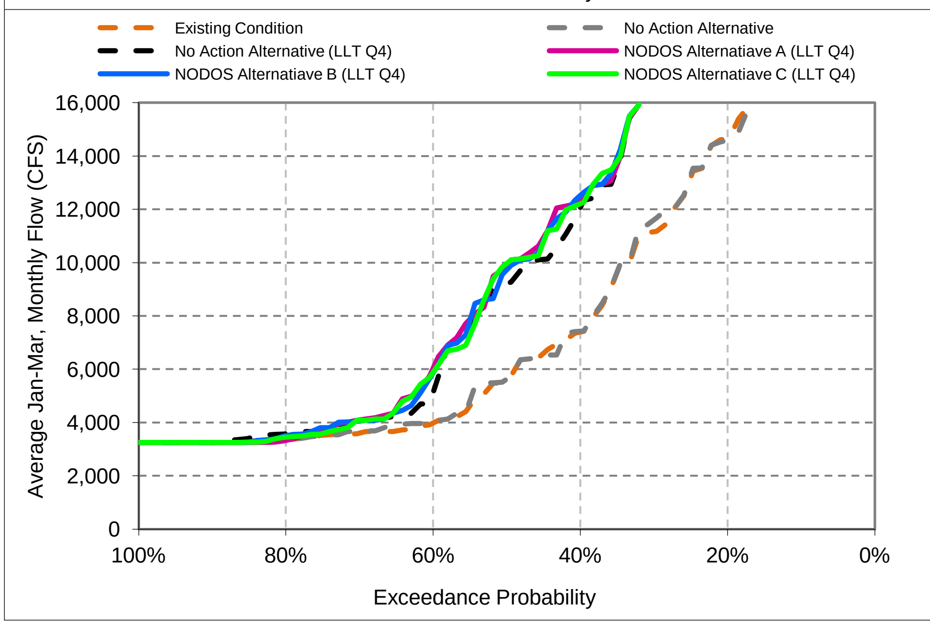


Figure 25B-34-6.
Sacramento River below Keswick Reservoir,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity

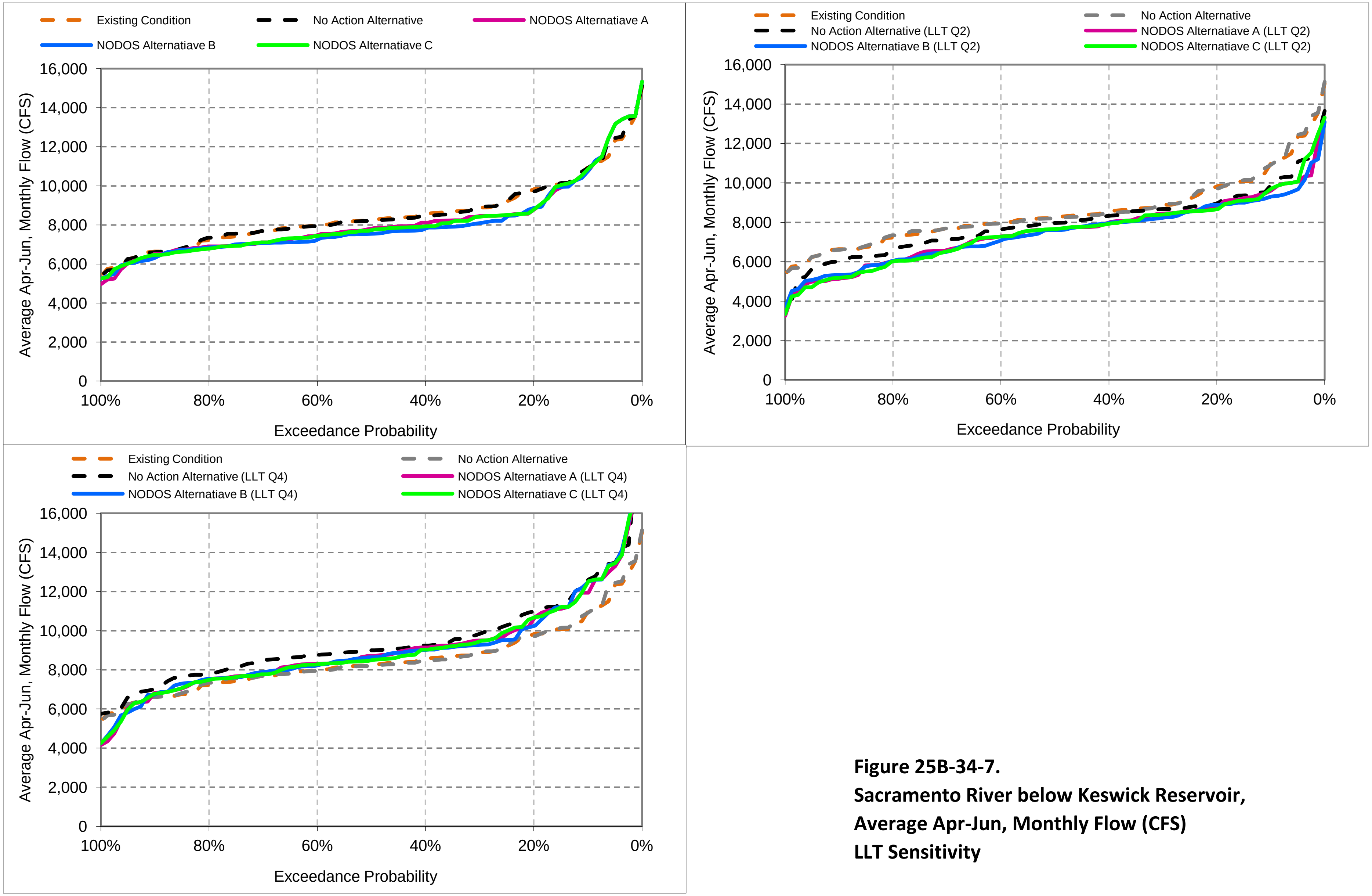


Figure 25B-34-7.
Sacramento River below Keswick Reservoir,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity

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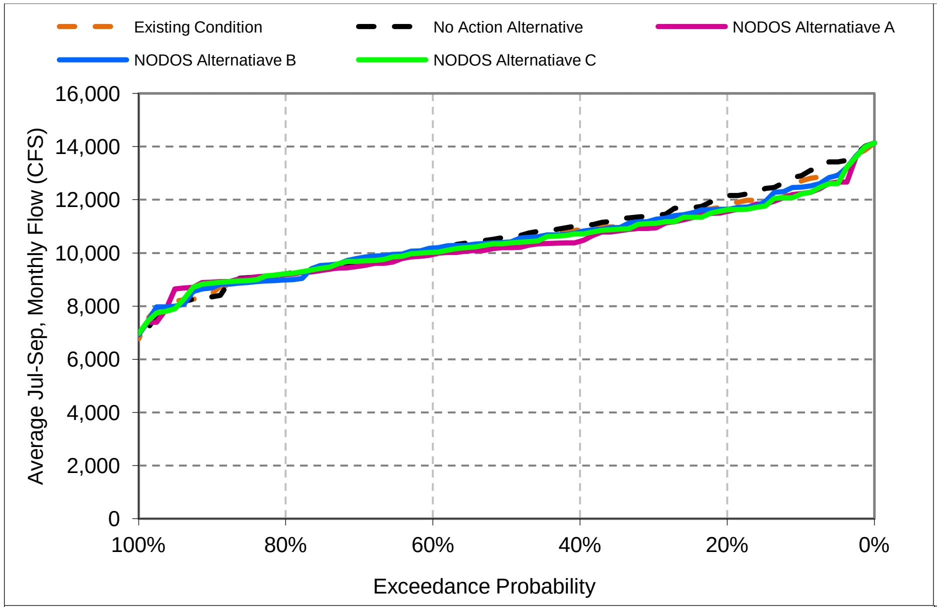
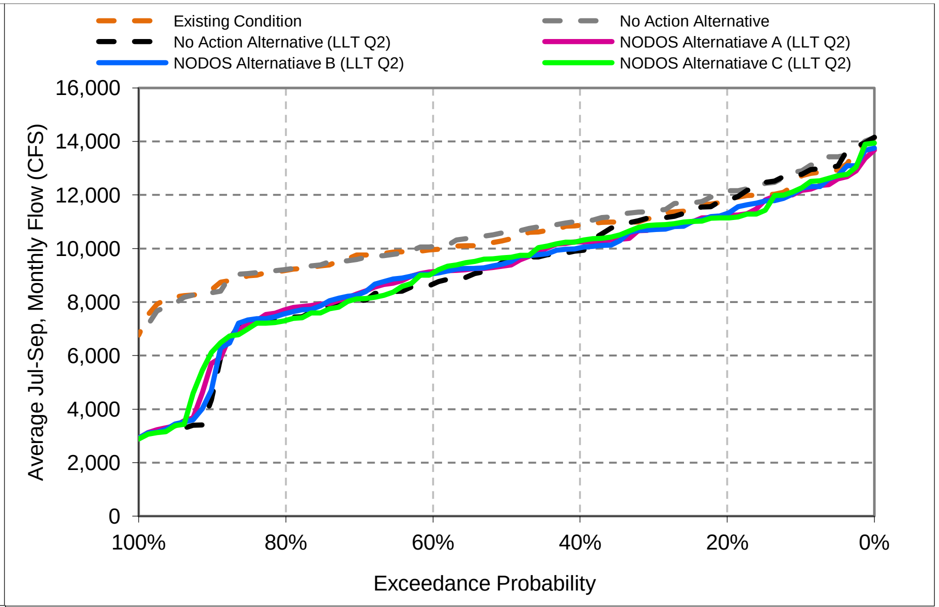




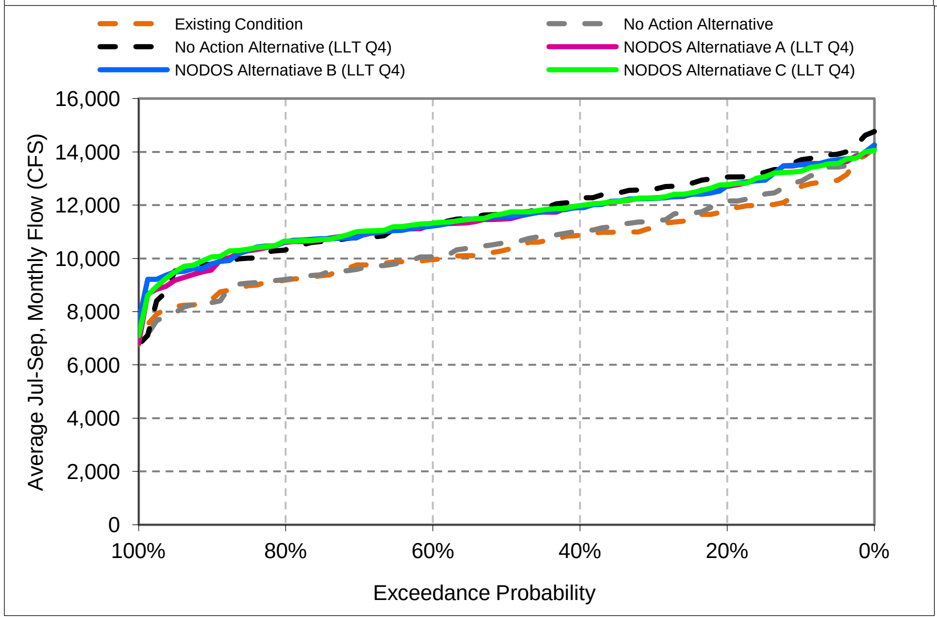


Figure 25B-34-8.
Sacramento River below Keswick Reservoir,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-35-1.
Tehama Colusa Canal Intake at Red Bluff
Monthly Diversion (CFS)
ELT and LLT trend

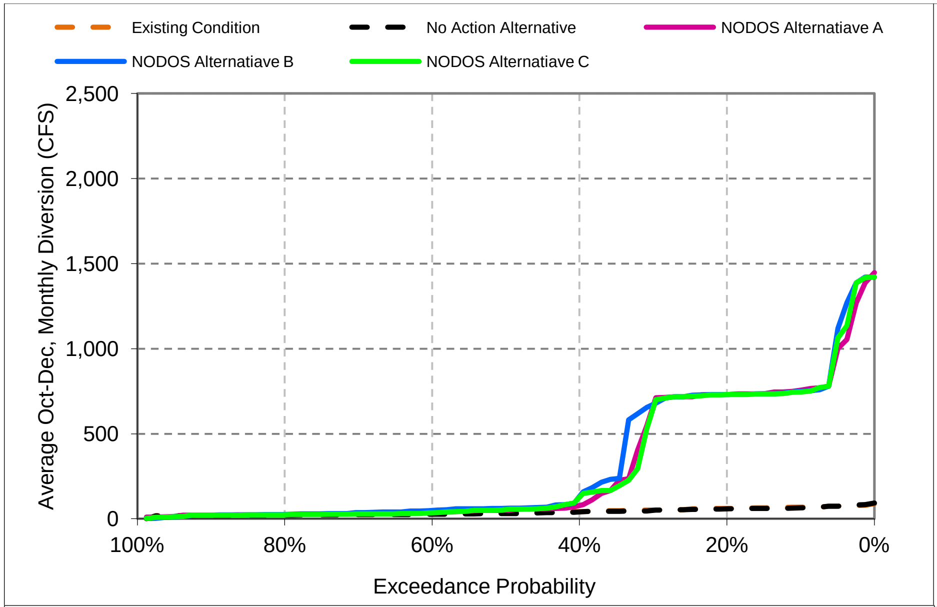
Long Term Average[1]

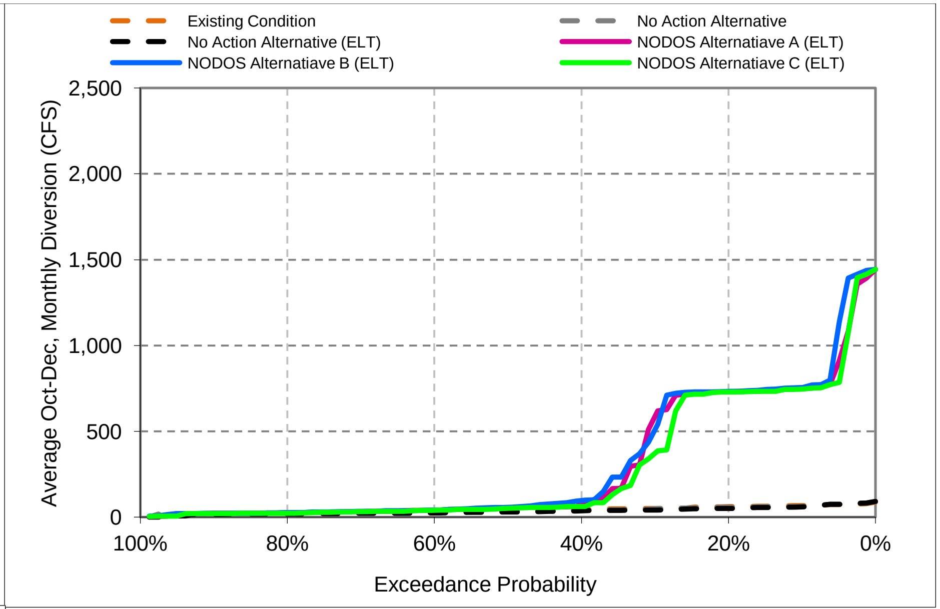
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	39	--	-3	-6	5	--	-0	-1	431	--	-54	-102	540	--	-63	-125
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	302	+263	+263	+326	1,119	+1,114	+1,157	+1,151	357	-75	-72	-51	393	-147	-137	-123
NODOS Alternative B	322	+283	+277	+326	1,459	+1,454	+1,465	+1,487	633	+202	+247	+240	479	-61	-76	-59
NODOS Alternative C	304	+265	+248	+329	1,230	+1,225	+1,249	+1,241	397	-34	-30	-1	387	-154	-140	-131

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	66	--	-4	-7	18	--	-1	-4	698	--	-43	-72	889	--	-4	-24
Change in Alternative from No Action Alternative:																
NODOS Alternative A	859	+793	+797	+897	1,898	+1,881	+2,008	+1,864	711	+13	-5	+19	674	-216	-270	-298
NODOS Alternative B	879	+812	+832	+910	2,123	+2,105	+2,107	+2,109	1,392	+694	+816	+785	866	-23	-110	-86
NODOS Alternative C	869	+802	+790	+903	2,075	+2,057	+2,074	+2,051	872	+174	+145	+218	701	-188	-258	-304
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	42	--	-4	-7	2	--	-0	-1	544	--	-66	-130	685	--	-102	-207
Change in Alternative from No Action Alternative:																
NODOS Alternative A	263	+221	+206	+353	1,416	+1,414	+1,413	+1,405	383	-161	-155	-134	458	-227	-178	-125
NODOS Alternative B	315	+272	+224	+342	1,953	+1,951	+1,989	+2,013	620	+77	+126	+124	562	-123	-136	-105
NODOS Alternative C	264	+221	+158	+362	1,456	+1,455	+1,497	+1,491	387	-157	-141	-133	443	-243	-178	-151
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	27	--	-2	-3	0	--	+0	-0	348	--	-71	-142	414	--	-89	-164
Change in Alternative from No Action Alternative:																
NODOS Alternative A	37	+10	+15	+17	836	+836	+886	+908	244	-104	-93	-65	298	-116	-75	-53
NODOS Alternative B	46	+20	+17	+17	1,284	+1,284	+1,317	+1,317	370	+22	+27	+27	333	-81	-48	-44
NODOS Alternative C	36	+9	+13	+17	1,028	+1,028	+1,067	+1,003	235	-113	-91	-69	274	-140	-90	-56
Lower (100%-75% exceedence)																
Change in No Action Alternative:	19	--	-4	-6	0	--	+0	+0	138	--	-37	-68	174	--	-59	-111
Change in Alternative from No Action Alternative:																
NODOS Alternative A	21	+2	+6	+7	326	+326	+320	+426	86	-52	-42	-27	141	-33	-26	-12
NODOS Alternative B	21	+1	+7	+7	492	+492	+466	+525	137	-1	+2	+6	153	-21	-13	-2
NODOS Alternative C	20	+0	+5	+7	363	+363	+360	+419	87	-51	-40	-30	126	-48	-33	-11

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





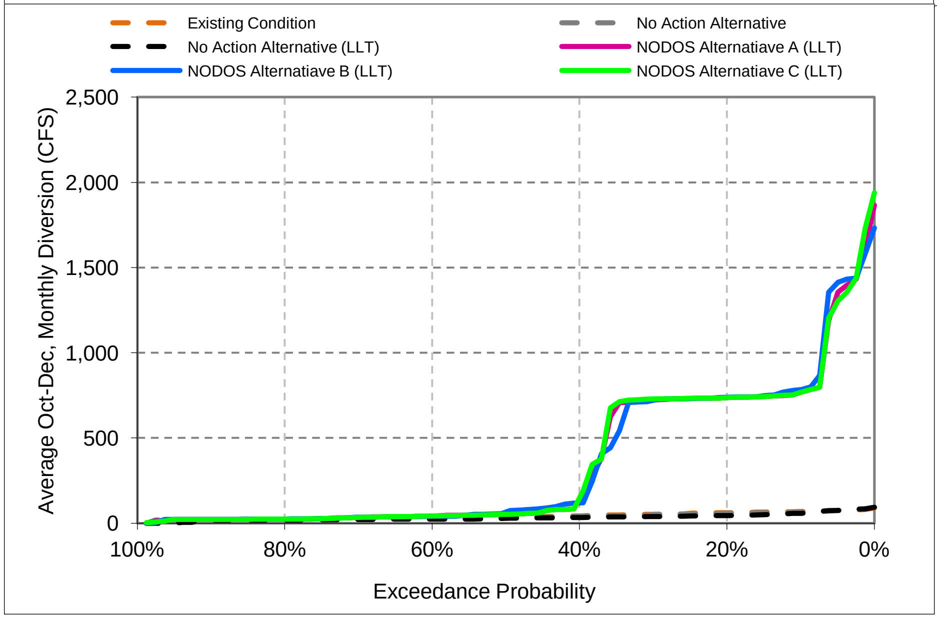


Figure 25B-35-1.
Tehama Colusa Canal Intake at Red Bluff,
Average Oct-Dec, Monthly Diversion (CFS)
ELT and LLT trend

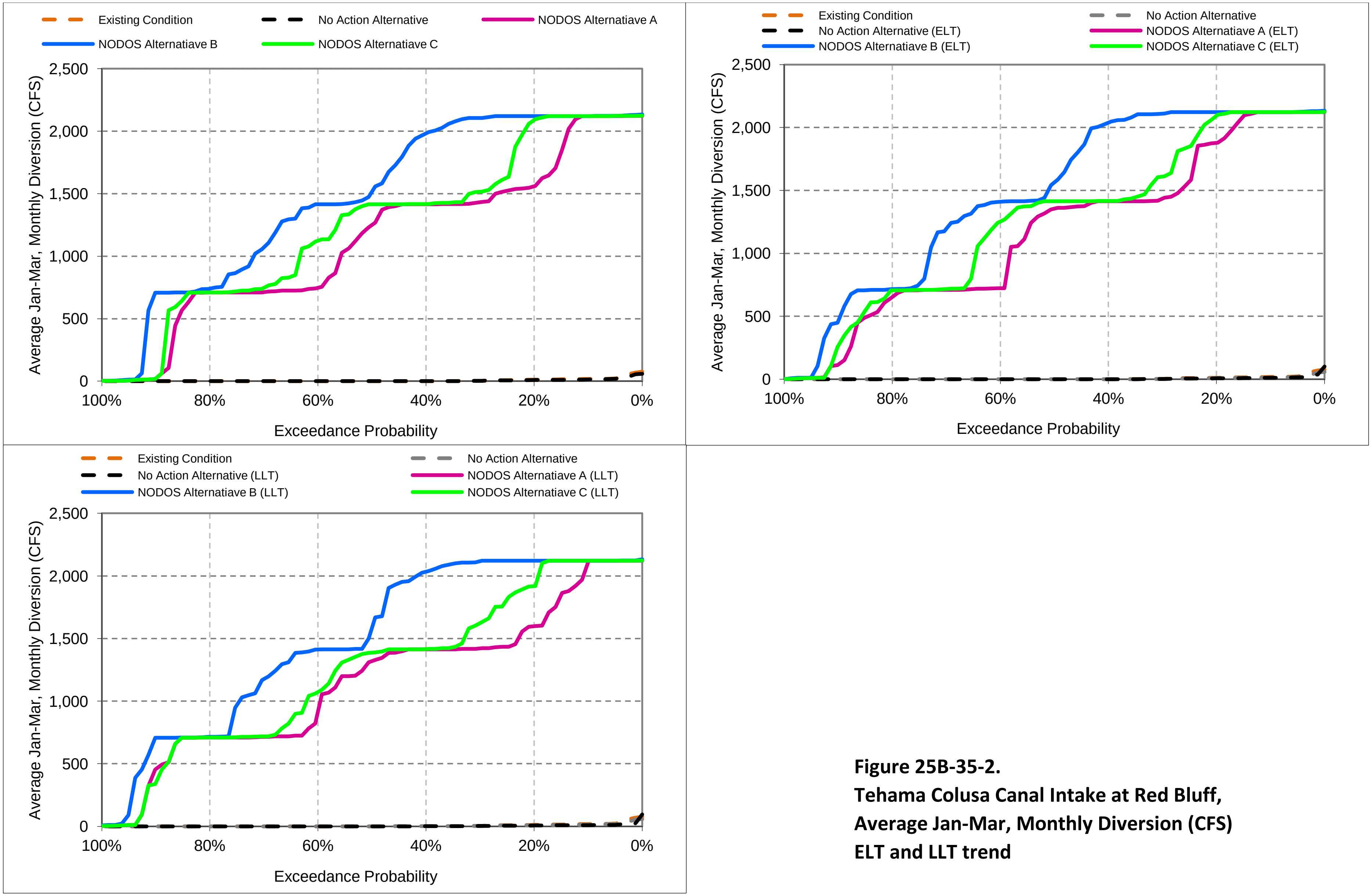
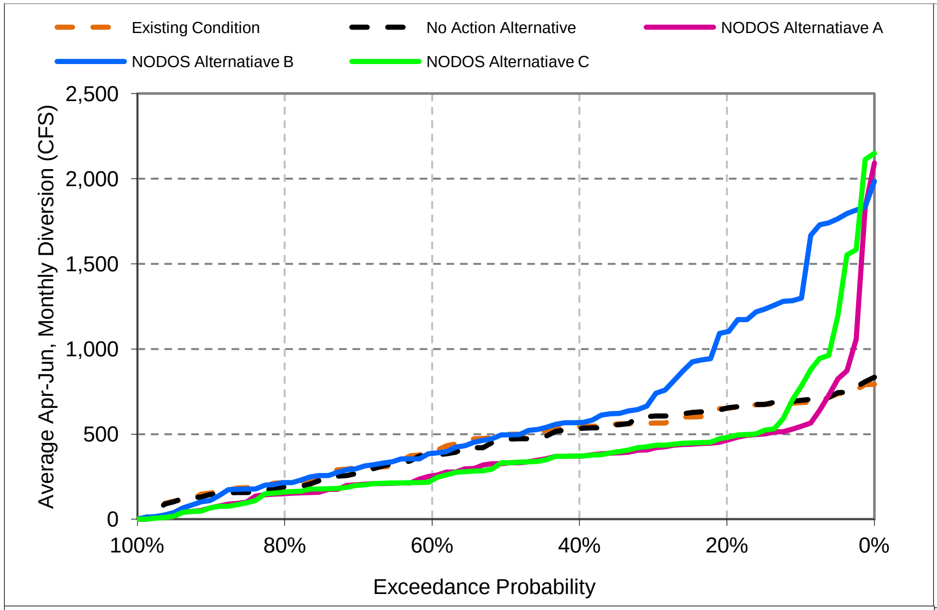
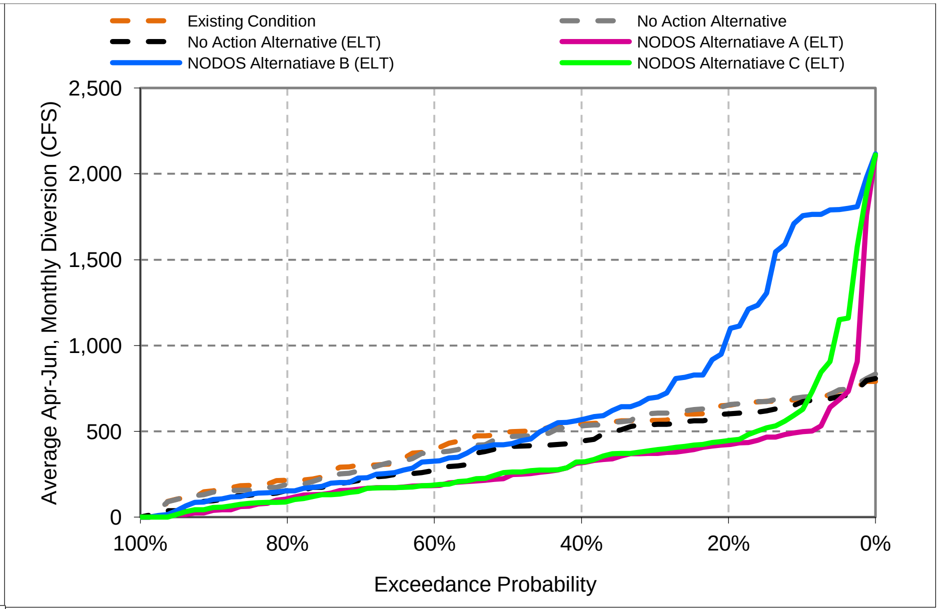


Figure 25B-35-2.
Tehama Colusa Canal Intake at Red Bluff,
Average Jan-Mar, Monthly Diversion (CFS)
ELT and LLT trend





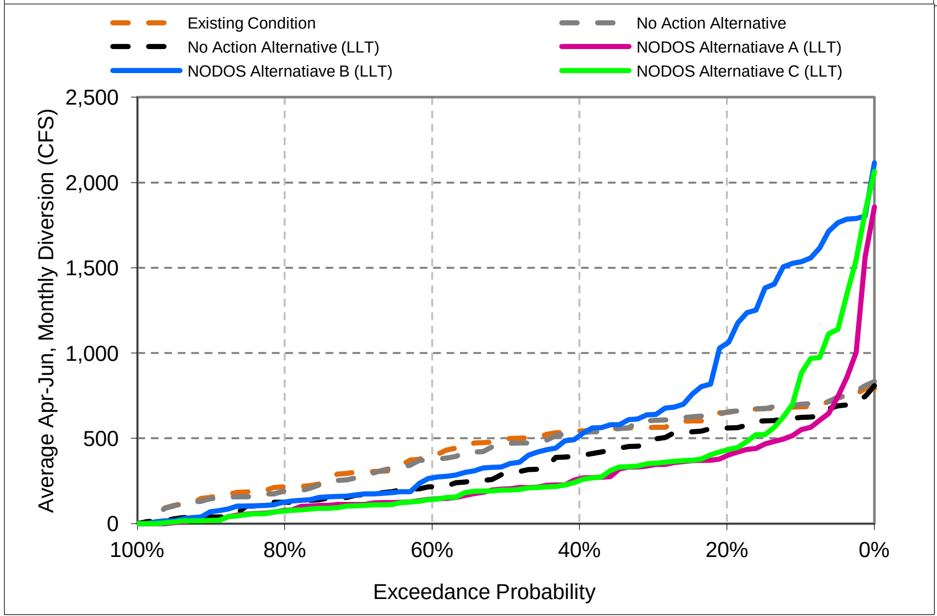
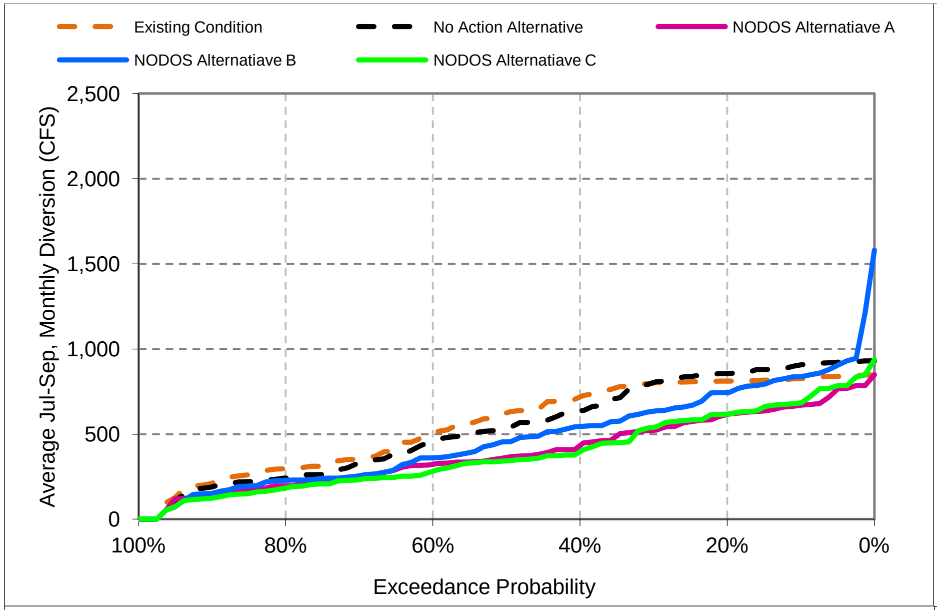
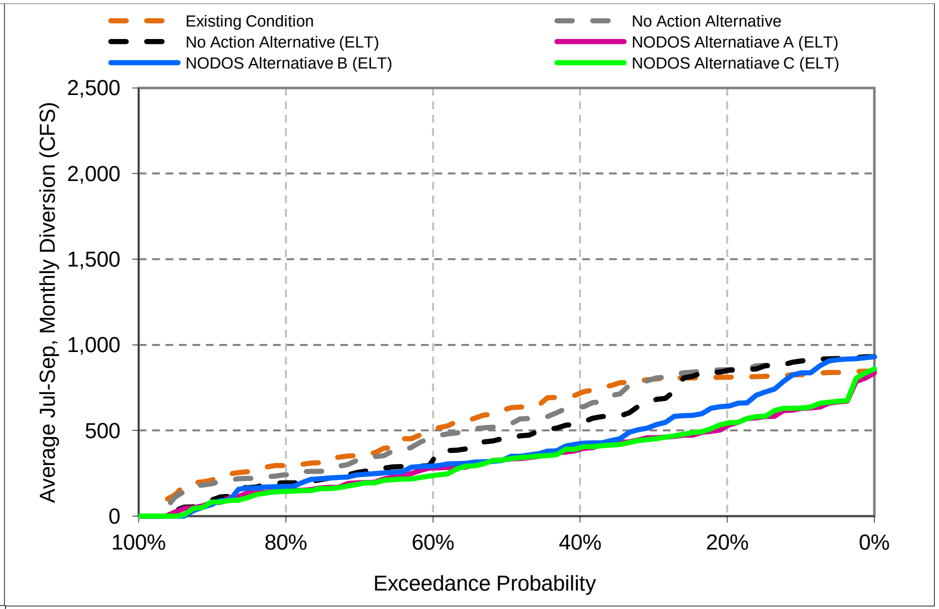


Figure 25B-35-3.
Tehama Colusa Canal Intake at Red Bluff,
Average Apr-Jun, Monthly Diversion (CFS)
ELT and LLT trend





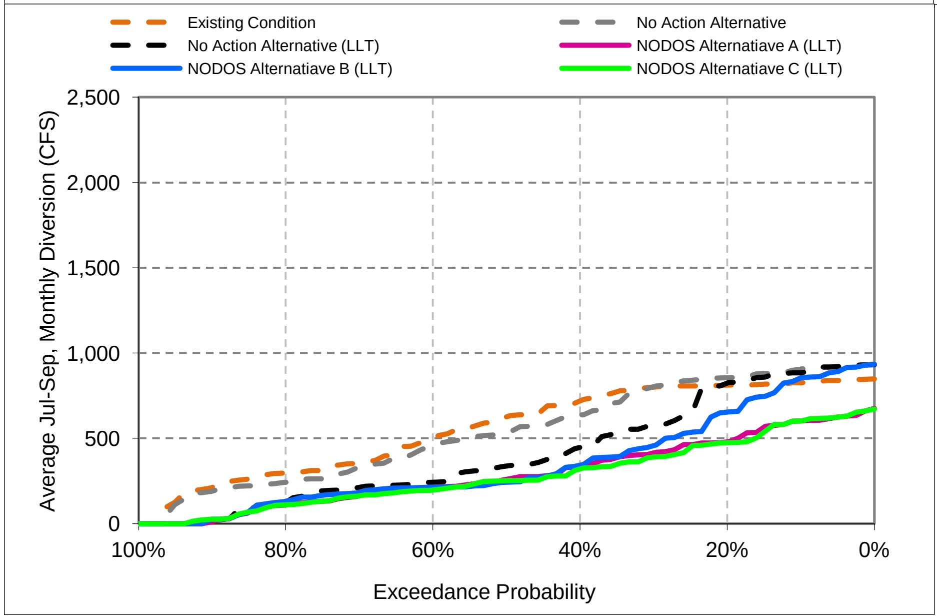


Figure 25B-35-4.
Tehama Colusa Canal Intake at Red Bluff,
Average Jul-Sep, Monthly Diversion (CFS)
ELT and LLT trend

Table 25B-35-2.
Tehama Colusa Canal Intake at Red Bluff
Monthly Diversion (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	39	--	-13	+1	5	--	-3	+1	431	--	-198	+33	540	--	-239	+32
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	302	+263	+295	+357	1,119	+1,114	+1,186	+1,121	357	-75	-33	-82	393	-147	-75	-157
NODOS Alternative B	322	+283	+311	+357	1,459	+1,454	+1,418	+1,493	633	+202	+194	+279	479	-61	-46	-89
NODOS Alternative C	304	+265	+300	+327	1,230	+1,225	+1,271	+1,217	397	-34	-4	-25	387	-154	-90	-172

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	66	--	-16	+2	18	--	-9	+4	698	--	-184	+9	889	--	-162	+8
Change in Alternative from No Action Alternative:																
NODOS Alternative A	859	+793	+865	+880	1,898	+1,881	+2,046	+1,947	711	+13	-17	+62	674	-216	-208	-218
NODOS Alternative B	879	+812	+885	+889	2,123	+2,105	+2,114	+2,102	1,392	+694	+593	+859	866	-23	-115	-63
NODOS Alternative C	869	+802	+845	+813	2,075	+2,057	+2,114	+2,040	872	+174	+96	+271	701	-188	-227	-252
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	42	--	-15	+2	2	--	-1	+0	544	--	-321	+28	685	--	-384	+59
Change in Alternative from No Action Alternative:																
NODOS Alternative A	263	+221	+272	+493	1,416	+1,414	+1,436	+1,414	383	-161	-49	-177	458	-227	-59	-240
NODOS Alternative B	315	+272	+313	+477	1,953	+1,951	+1,939	+2,031	620	+77	+143	+226	562	-123	-34	-158
NODOS Alternative C	264	+221	+310	+446	1,456	+1,455	+1,638	+1,435	387	-157	-38	-170	443	-243	-77	-257
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	27	--	-7	+1	0	--	+0	-0	348	--	-200	+89	414	--	-243	+83
Change in Alternative from No Action Alternative:																
NODOS Alternative A	37	+10	+10	+25	836	+836	+876	+873	244	-104	-54	-168	298	-116	-35	-139
NODOS Alternative B	46	+20	+10	+29	1,284	+1,284	+1,158	+1,359	370	+22	+11	+22	333	-81	-36	-113
NODOS Alternative C	36	+9	+10	+23	1,028	+1,028	+952	+1,030	235	-113	-61	-169	274	-140	-55	-153
Lower (100%-75% exceedence)																
Change in No Action Alternative:	19	--	-12	+1	0	--	+0	+0	138	--	-94	+9	174	--	-173	-17
Change in Alternative from No Action Alternative:																
NODOS Alternative A	21	+2	+5	+4	326	+326	+385	+253	86	-52	-14	-52	141	-33	+5	-36
NODOS Alternative B	21	+1	+6	+5	492	+492	+476	+497	137	-1	+18	-6	153	-21	+0	-25
NODOS Alternative C	20	+0	+5	+3	363	+363	+385	+364	87	-51	-17	-45	126	-48	+1	-29

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

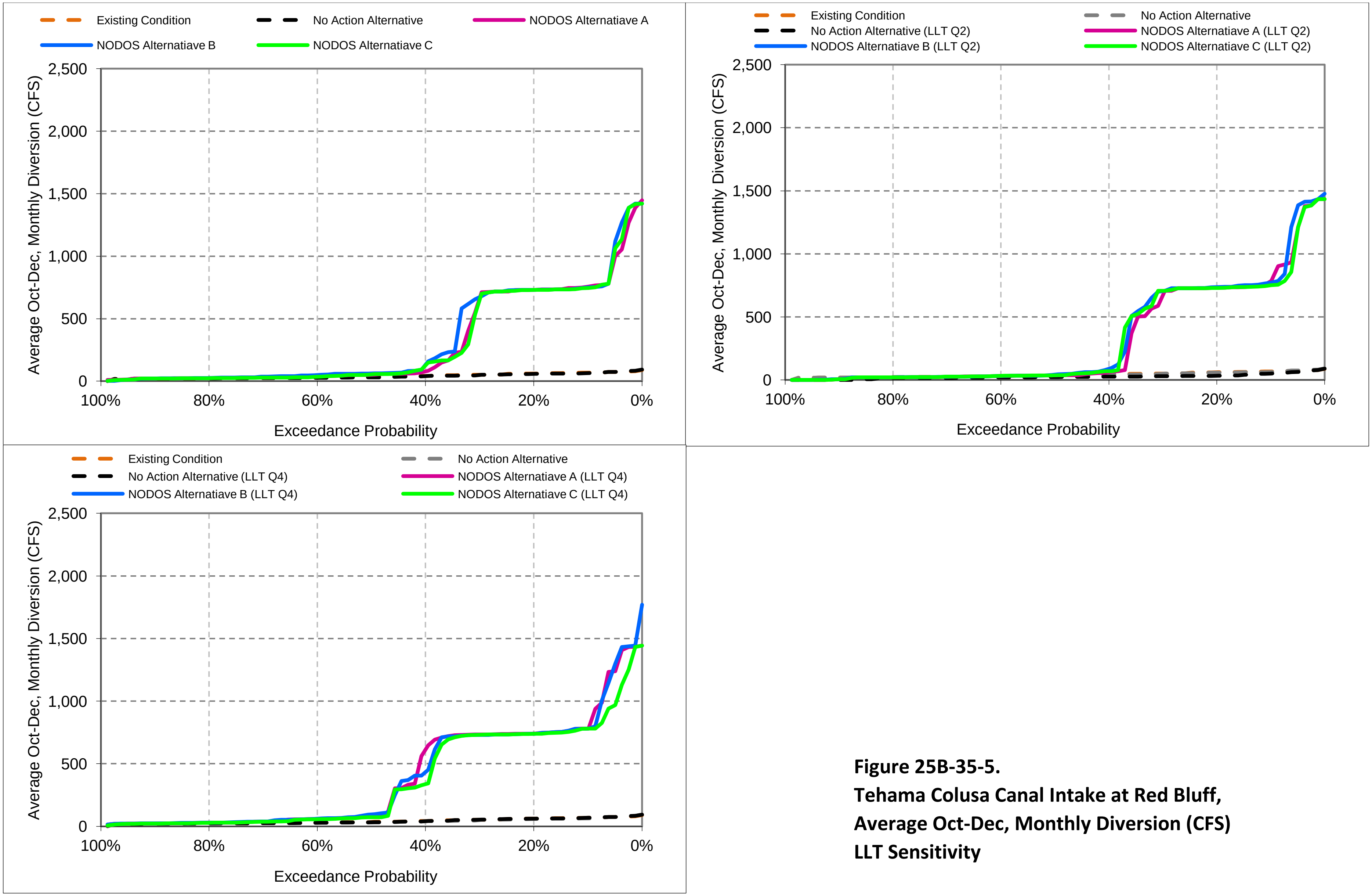
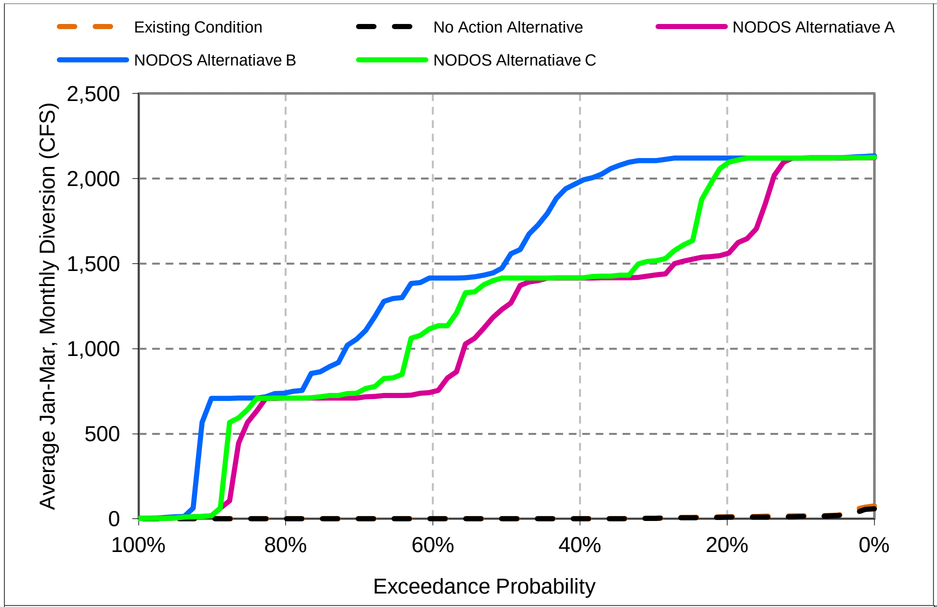
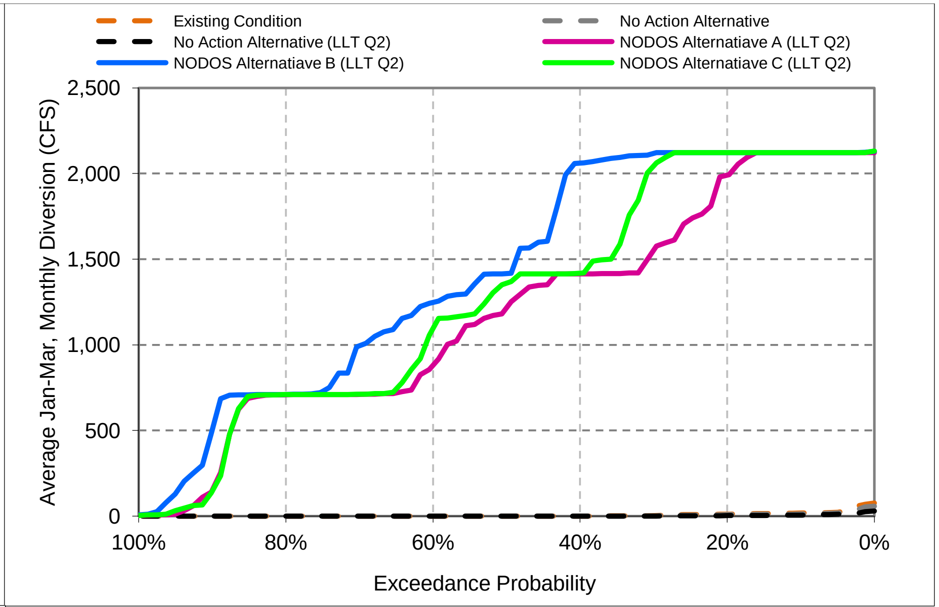


Figure 25B-35-5.
Tehama Colusa Canal Intake at Red Bluff,
Average Oct-Dec, Monthly Diversion (CFS)
LLT Sensitivity





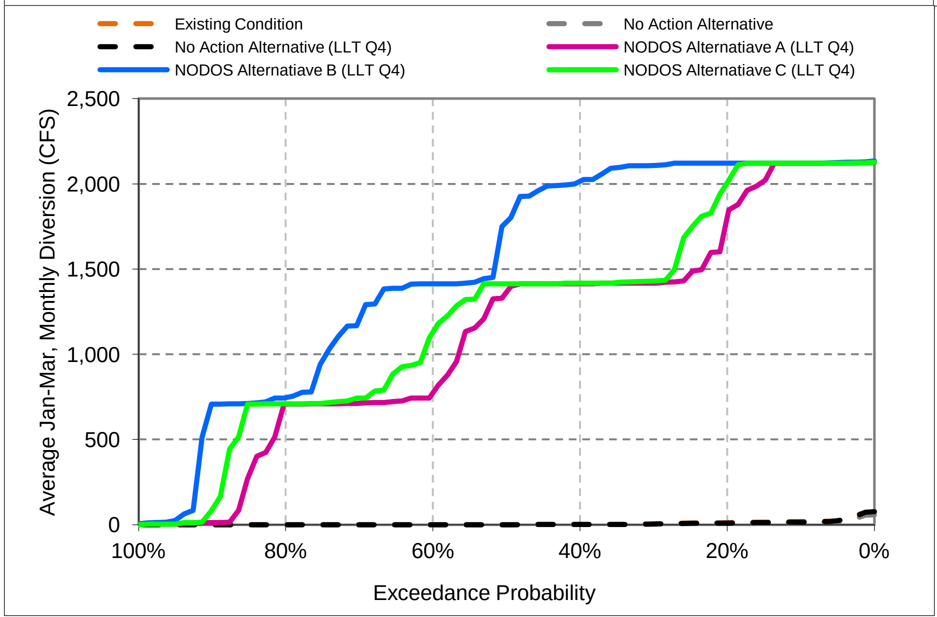


Figure 25B-35-6.
Tehama Colusa Canal Intake at Red Bluff,
Average Jan-Mar, Monthly Diversion (CFS)
LLT Sensitivity

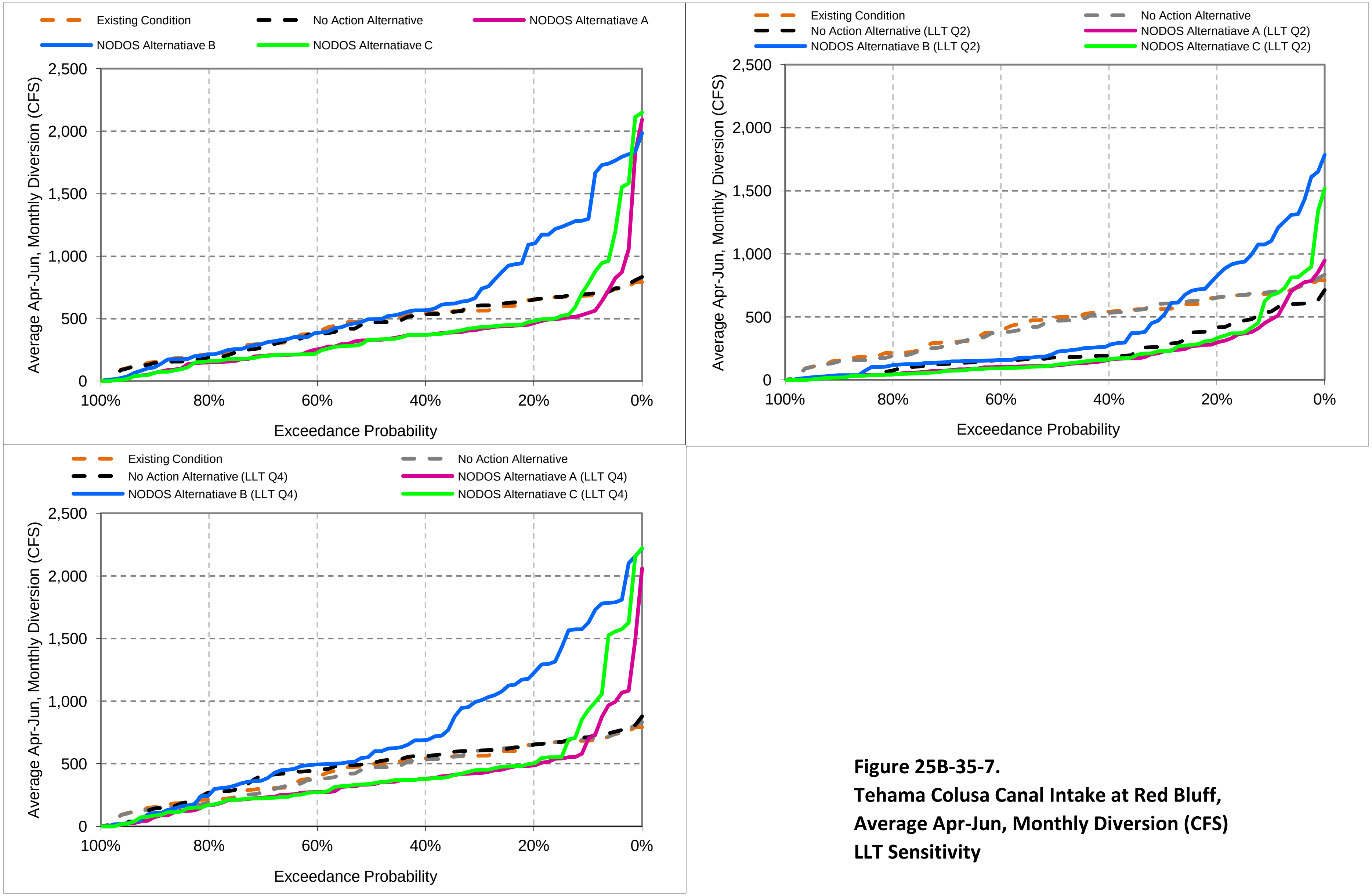
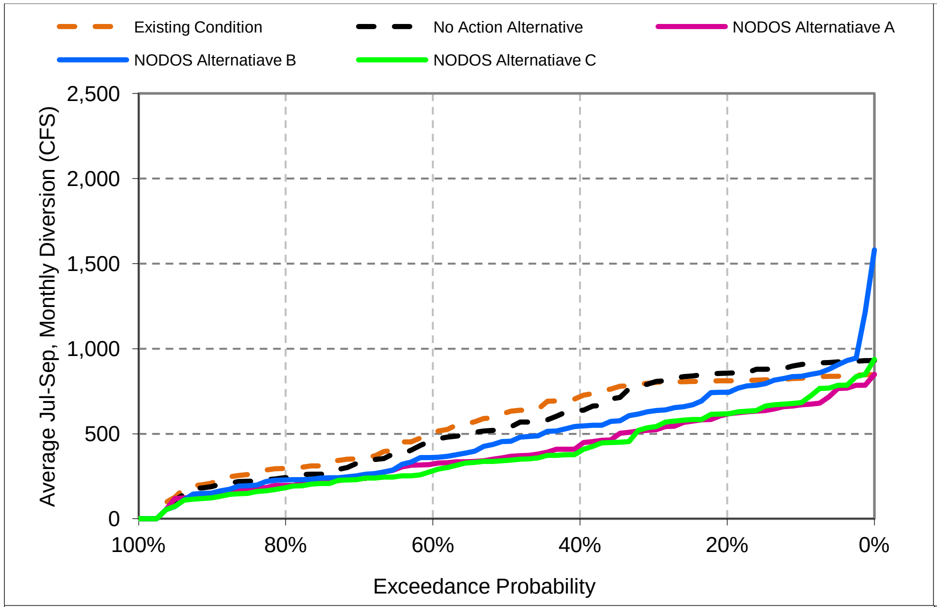
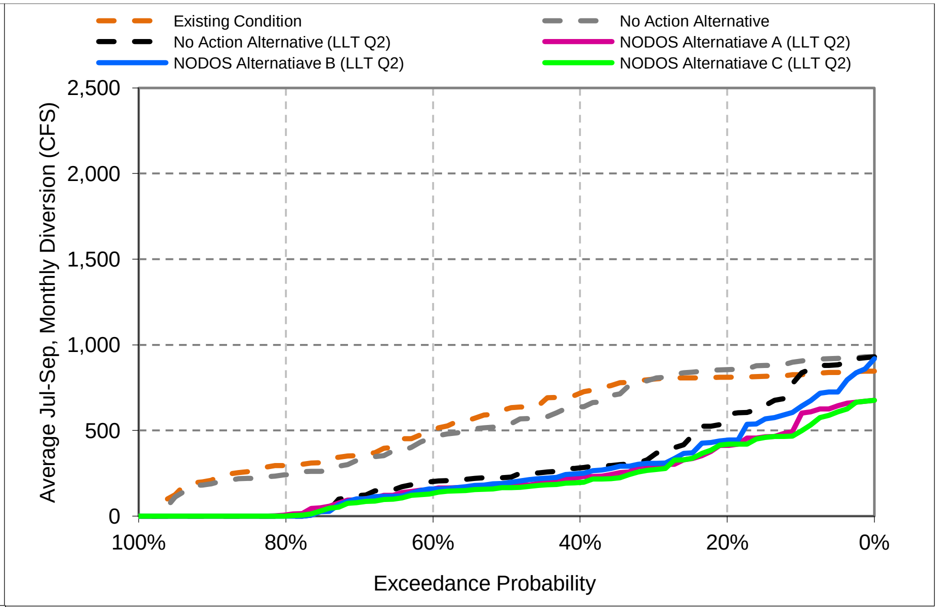


Figure 25B-35-7.
Tehama Colusa Canal Intake at Red Bluff,
Average Apr-Jun, Monthly Diversion (CFS)
LLT Sensitivity





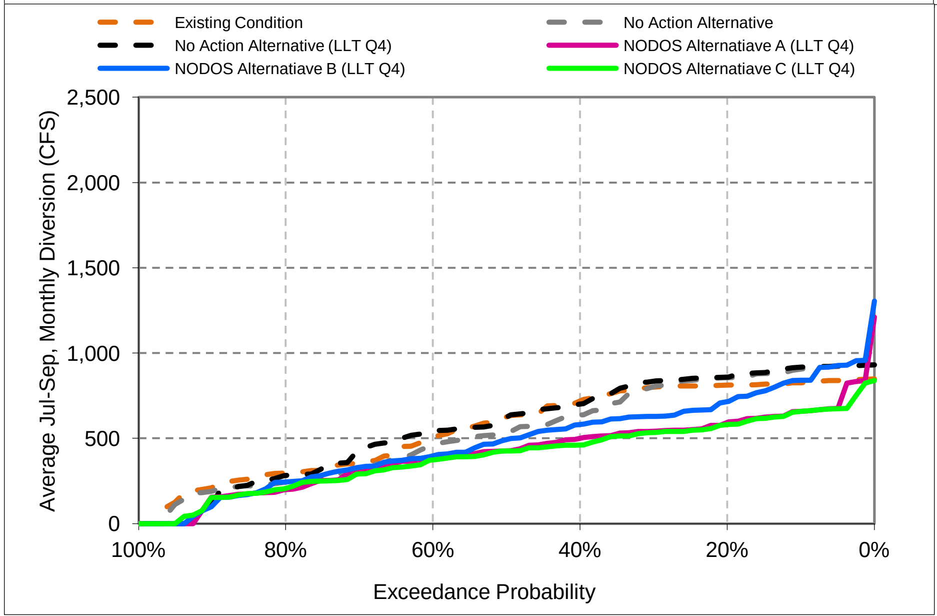


Figure 25B-35-8.
Tehama Colusa Canal Intake at Red Bluff,
Average Jul-Sep, Monthly Diversion (CFS)
LLT Sensitivity

Table 25B-36-1.
Glenn Colusa Canal Intake at Hamilton City
Monthly Diversion (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	469	--	-14	-17	64	--	-0	-1	2,393	--	-2	-8	1,804	--	-22	-49
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	569	+99	+114	+144	322	+259	+285	+283	2,087	-306	-371	-411	1,406	-398	-416	-382
NODOS Alternative B	541	+72	+94	+130	412	+348	+363	+379	2,450	+58	+104	+127	1,663	-142	-112	-109
NODOS Alternative C	553	+84	+106	+146	372	+309	+336	+329	2,099	-294	-333	-395	1,351	-454	-422	-414

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	539	--	-0	-2	86	--	-1	-1	2,643	--	-9	-4	1,904	--	-4	-1
Change in Alternative from No Action Alternative:																
NODOS Alternative A	933	+394	+381	+478	727	+641	+695	+667	2,546	-97	-230	-241	1,847	-57	-96	-83
NODOS Alternative B	822	+284	+298	+405	763	+678	+679	+699	2,894	+251	+277	+274	1,986	+82	+47	+10
NODOS Alternative C	919	+380	+390	+475	797	+711	+737	+742	2,577	-66	-150	-177	1,826	-78	-116	-111
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	497	--	-2	-4	64	--	+0	-0	2,492	--	-0	+2	1,873	--	-3	-2
Change in Alternative from No Action Alternative:																
NODOS Alternative A	537	+39	+36	+44	301	+237	+293	+266	2,220	-272	-345	-390	1,429	-444	-466	-440
NODOS Alternative B	548	+50	+37	+48	531	+467	+478	+502	2,643	+151	+178	+191	1,856	-17	-1	-9
NODOS Alternative C	527	+29	+29	+51	386	+322	+394	+349	2,247	-245	-309	-369	1,404	-470	-467	-456
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	458	--	-1	-3	55	--	+0	-0	2,370	--	-1	+5	1,846	--	-1	+2
Change in Alternative from No Action Alternative:																
NODOS Alternative A	454	-4	+5	+23	170	+115	+118	+139	2,052	-319	-354	-426	1,299	-547	-576	-497
NODOS Alternative B	463	+5	+14	+30	258	+204	+247	+267	2,366	-4	+59	+95	1,612	-234	-207	-176
NODOS Alternative C	439	-19	-1	+31	203	+149	+171	+164	2,075	-295	-335	-409	1,200	-647	-556	-544
Lower (100%-75% exceedence)																
Change in No Action Alternative:	380	--	-52	-62	51	--	-1	-1	2,069	--	+4	-33	1,599	--	-79	-192
Change in Alternative from No Action Alternative:																
NODOS Alternative A	334	-46	+20	+16	84	+33	+27	+53	1,533	-536	-552	-586	1,045	-553	-534	-515
NODOS Alternative B	318	-62	+17	+24	94	+43	+48	+49	1,904	-165	-97	-53	1,203	-395	-286	-259
NODOS Alternative C	310	-70	-8	+10	96	+46	+37	+55	1,503	-566	-535	-626	968	-630	-558	-554

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
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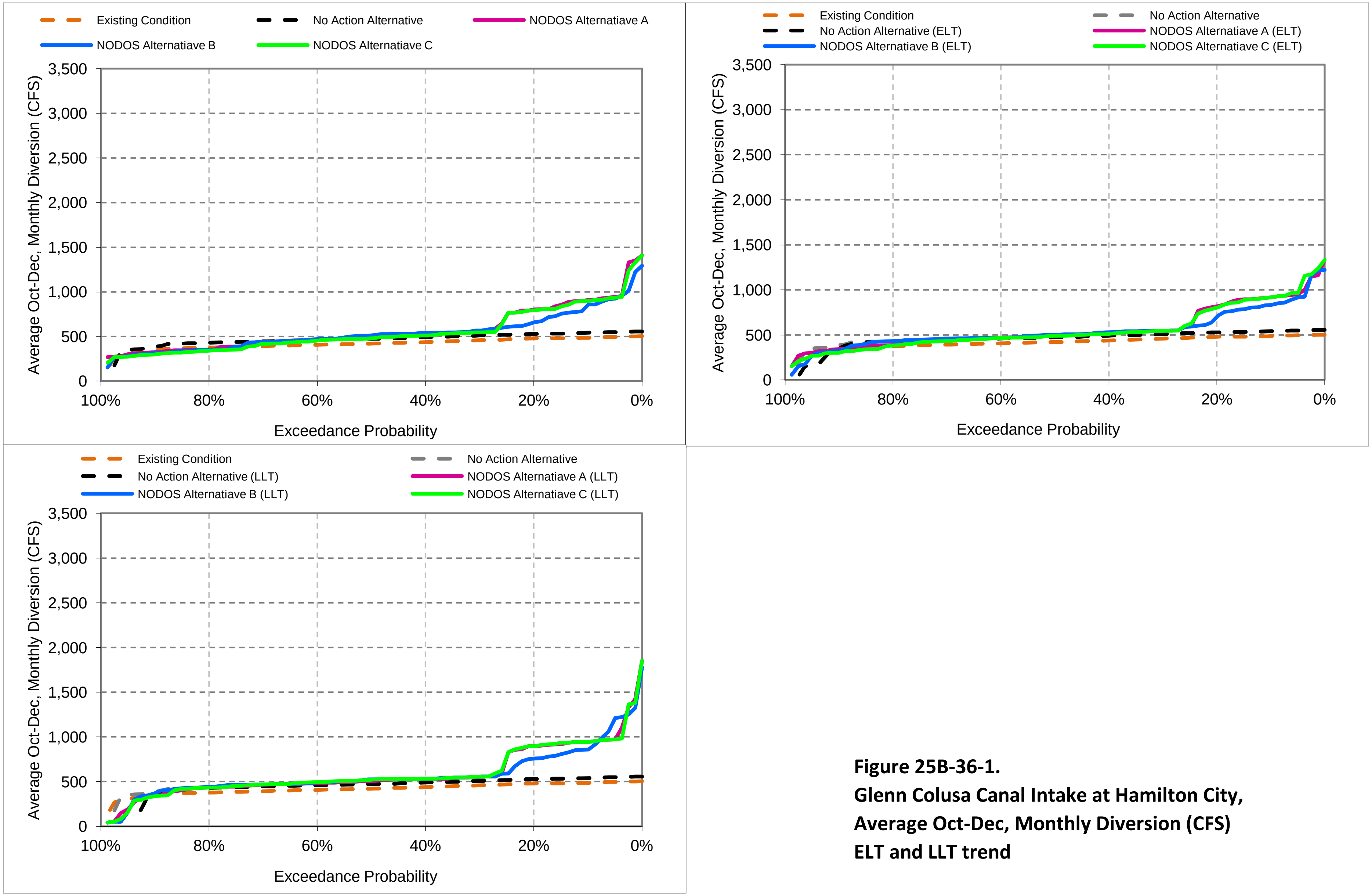
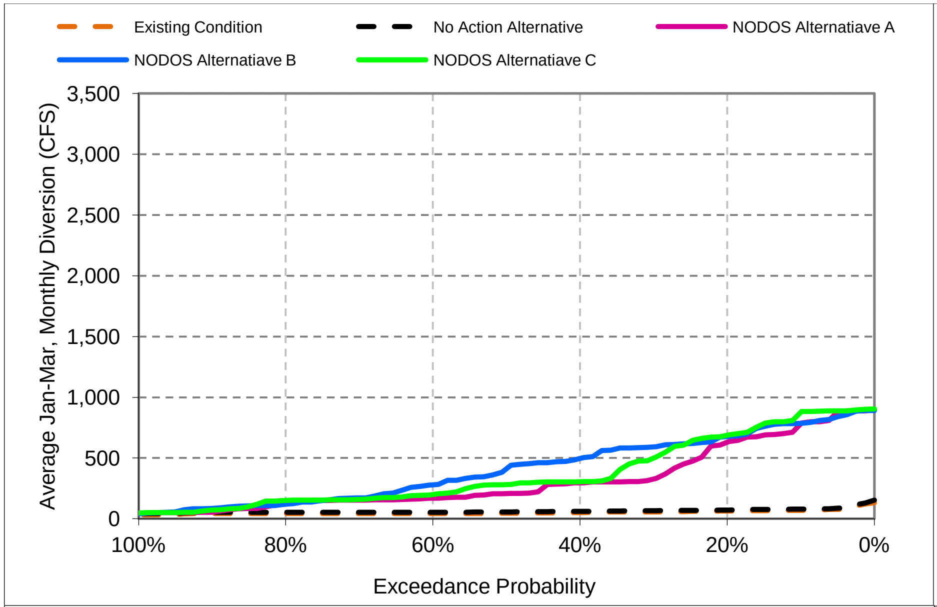
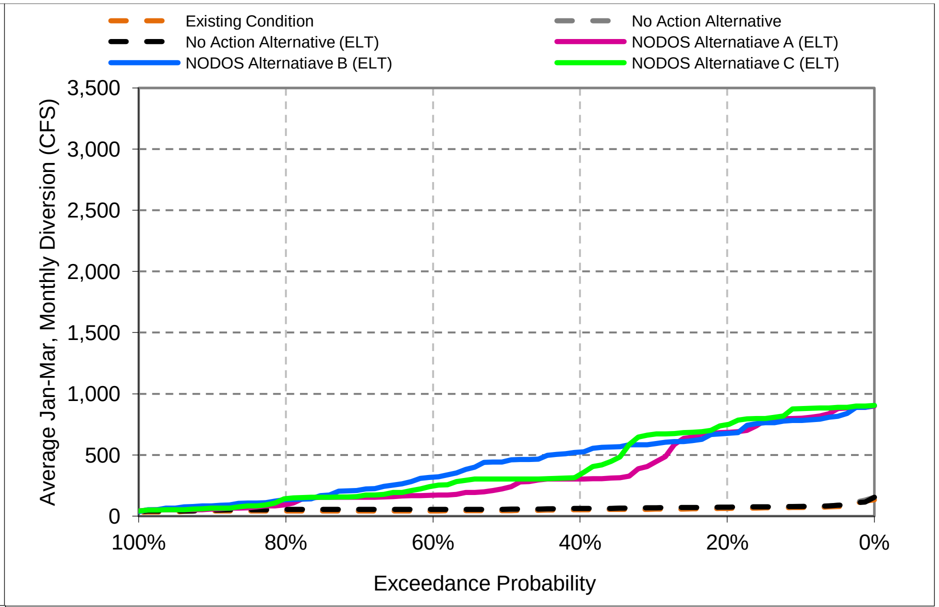


Figure 25B-36-1.
Glenn Colusa Canal Intake at Hamilton City, Average Oct-Dec, Monthly Diversion (CFS) ELT and LLT trend





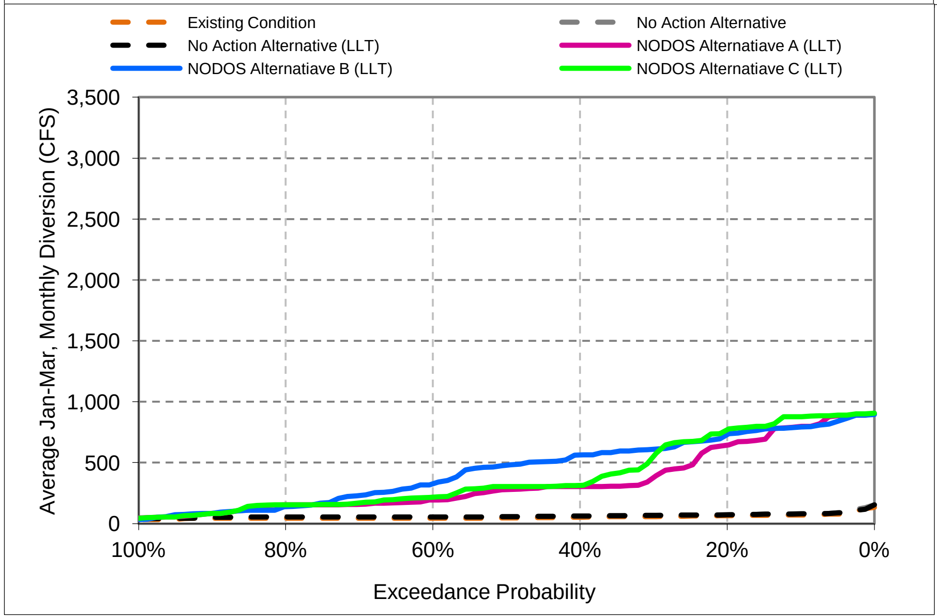
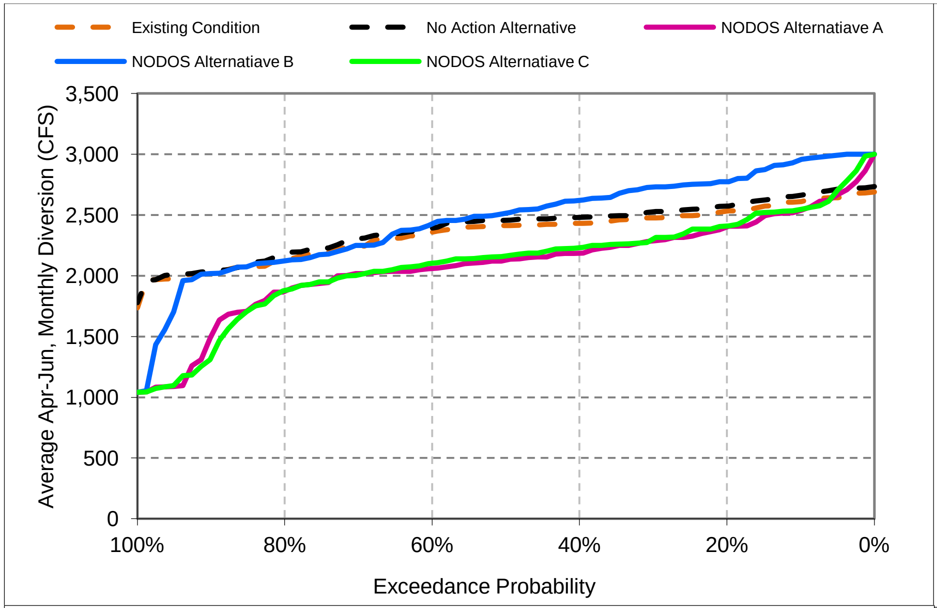
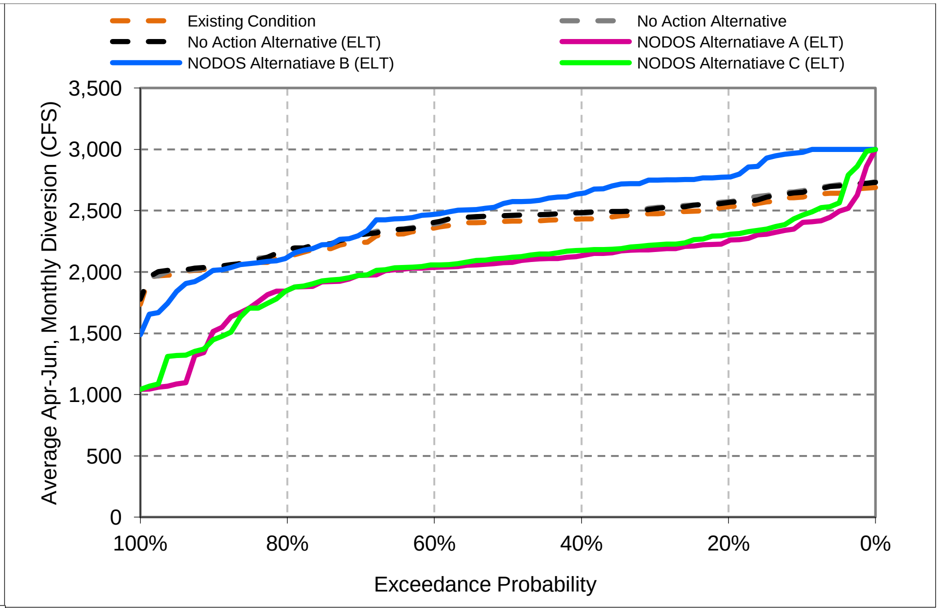


Figure 25B-36-2.
Glenn Colusa Canal Intake at Hamilton City,
Average Jan-Mar, Monthly Diversion (CFS)
ELT and LLT trend





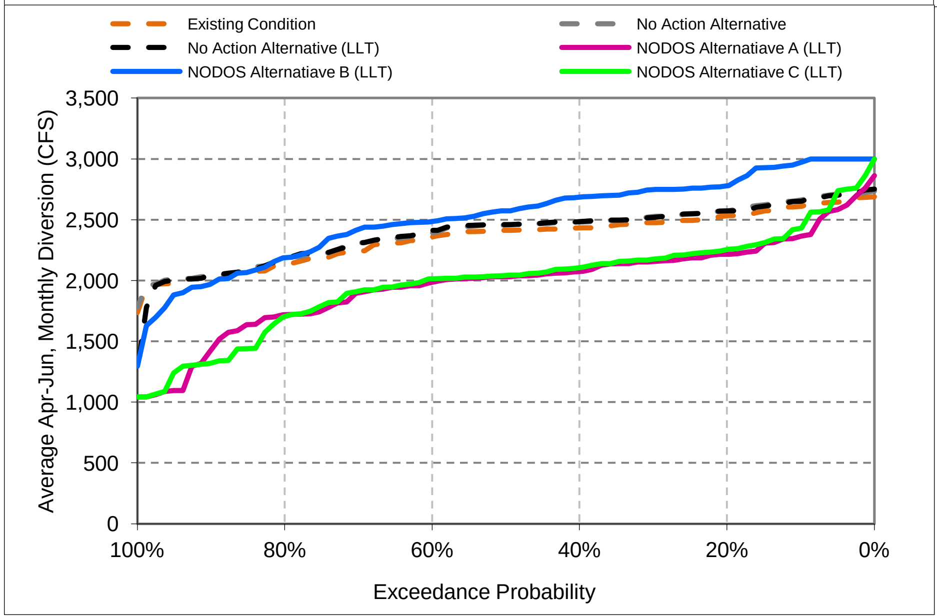
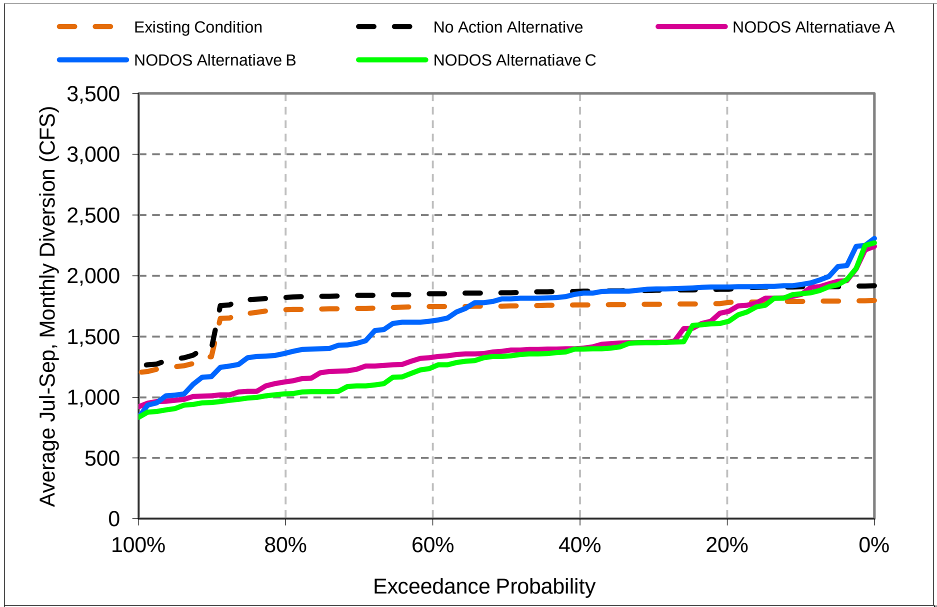
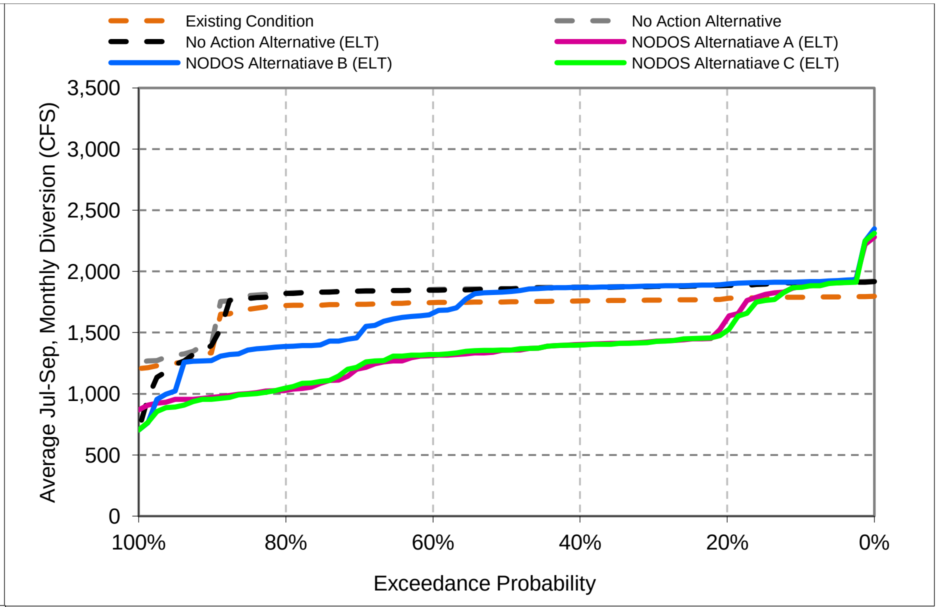


Figure 25B-36-3.
Glenn Colusa Canal Intake at Hamilton City,
Average Apr-Jun, Monthly Diversion (CFS)
ELT and LLT trend





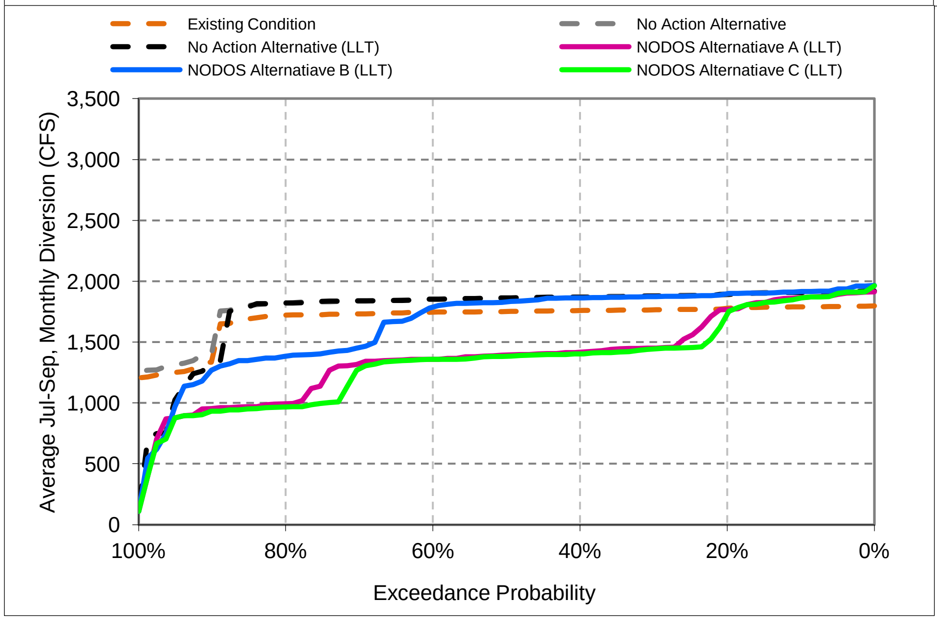


Figure 25B-36-4.
Glenn Colusa Canal Intake at Hamilton City,
Average Jul-Sep, Monthly Diversion (CFS)
ELT and LLT trend

Table 25B-36-2.
Glenn Colusa Canal Intake at Hamilton City
Monthly Diversion (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	469	--	-77	+11	64	--	-5	+1	2,393	--	-152	+38	1,804	--	-266	+27
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	569	+99	+128	+122	322	+259	+297	+305	2,087	-306	-444	-322	1,406	-398	-305	-384
NODOS Alternative B	541	+72	+126	+106	412	+348	+344	+370	2,450	+58	+77	+150	1,663	-142	-49	-131
NODOS Alternative C	553	+84	+134	+116	372	+309	+360	+346	2,099	-294	-412	-290	1,351	-454	-322	-391

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	539	--	-12	+2	86	--	-7	+1	2,643	--	-25	+18	1,904	--	-5	+5
Change in Alternative from No Action Alternative:																
NODOS Alternative A	933	+394	+389	+411	727	+641	+709	+710	2,546	-97	-364	-181	1,847	-57	-118	-79
NODOS Alternative B	822	+284	+347	+342	763	+678	+712	+660	2,894	+251	+150	+271	1,986	+82	+11	+36
NODOS Alternative C	919	+380	+403	+413	797	+711	+780	+747	2,577	-66	-265	-160	1,826	-78	-132	-51
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	497	--	-22	+5	64	--	-5	+1	2,492	--	-64	+23	1,873	--	-9	+12
Change in Alternative from No Action Alternative:																
NODOS Alternative A	537	+39	+43	+78	301	+237	+294	+322	2,220	-272	-384	-343	1,429	-444	-443	-439
NODOS Alternative B	548	+50	+54	+57	531	+467	+466	+491	2,643	+151	+145	+210	1,856	-17	+3	-22
NODOS Alternative C	527	+29	+49	+68	386	+322	+450	+408	2,247	-245	-369	-309	1,404	-470	-455	-406
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	458	--	-45	+8	55	--	-1	+0	2,370	--	-237	+49	1,846	--	-144	+17
Change in Alternative from No Action Alternative:																
NODOS Alternative A	454	-4	+27	+28	170	+115	+137	+147	2,052	-319	-403	-366	1,299	-547	-471	-480
NODOS Alternative B	463	+5	+31	+28	258	+204	+167	+272	2,366	-4	+103	+128	1,612	-234	-227	-198
NODOS Alternative C	439	-19	+26	+18	203	+149	+161	+173	2,075	-295	-418	-326	1,200	-647	-539	-495
Lower (100%-75% exceedence)																
Change in No Action Alternative:	380	--	-233	+29	51	--	-7	+1	2,069	--	-283	+61	1,599	--	-889	+72
Change in Alternative from No Action Alternative:																
NODOS Alternative A	334	-46	+40	-41	84	+33	+39	+32	1,533	-536	-619	-401	1,045	-553	-201	-542
NODOS Alternative B	318	-62	+62	-15	94	+43	+28	+56	1,904	-165	-86	-9	1,203	-395	+12	-337
NODOS Alternative C	310	-70	+44	-49	96	+46	+44	+50	1,503	-566	-595	-368	968	-630	-179	-619

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.

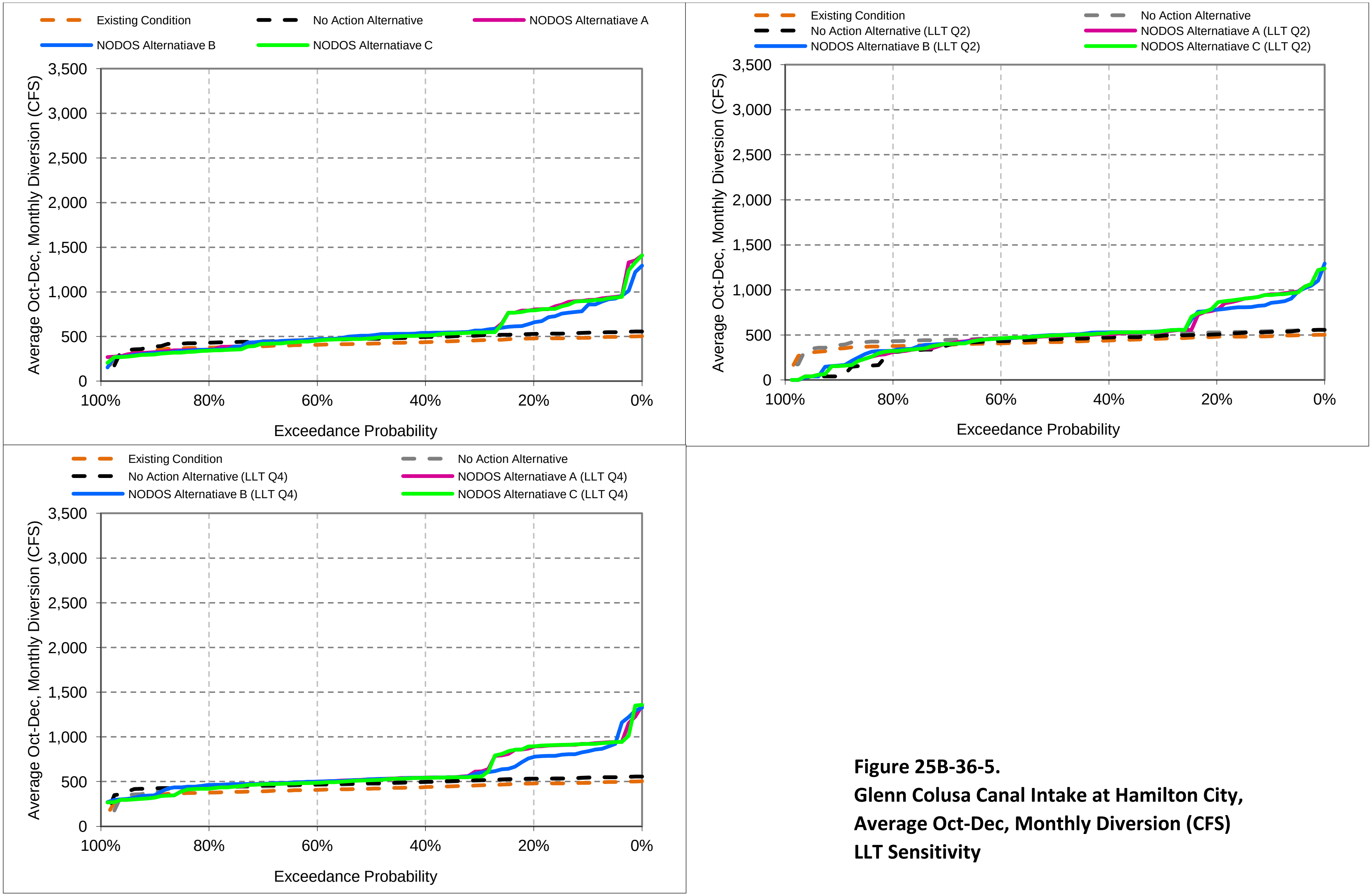


Figure 25B-36-5.
Glenn Colusa Canal Intake at Hamilton City,
Average Oct-Dec, Monthly Diversion (CFS)
LLT Sensitivity

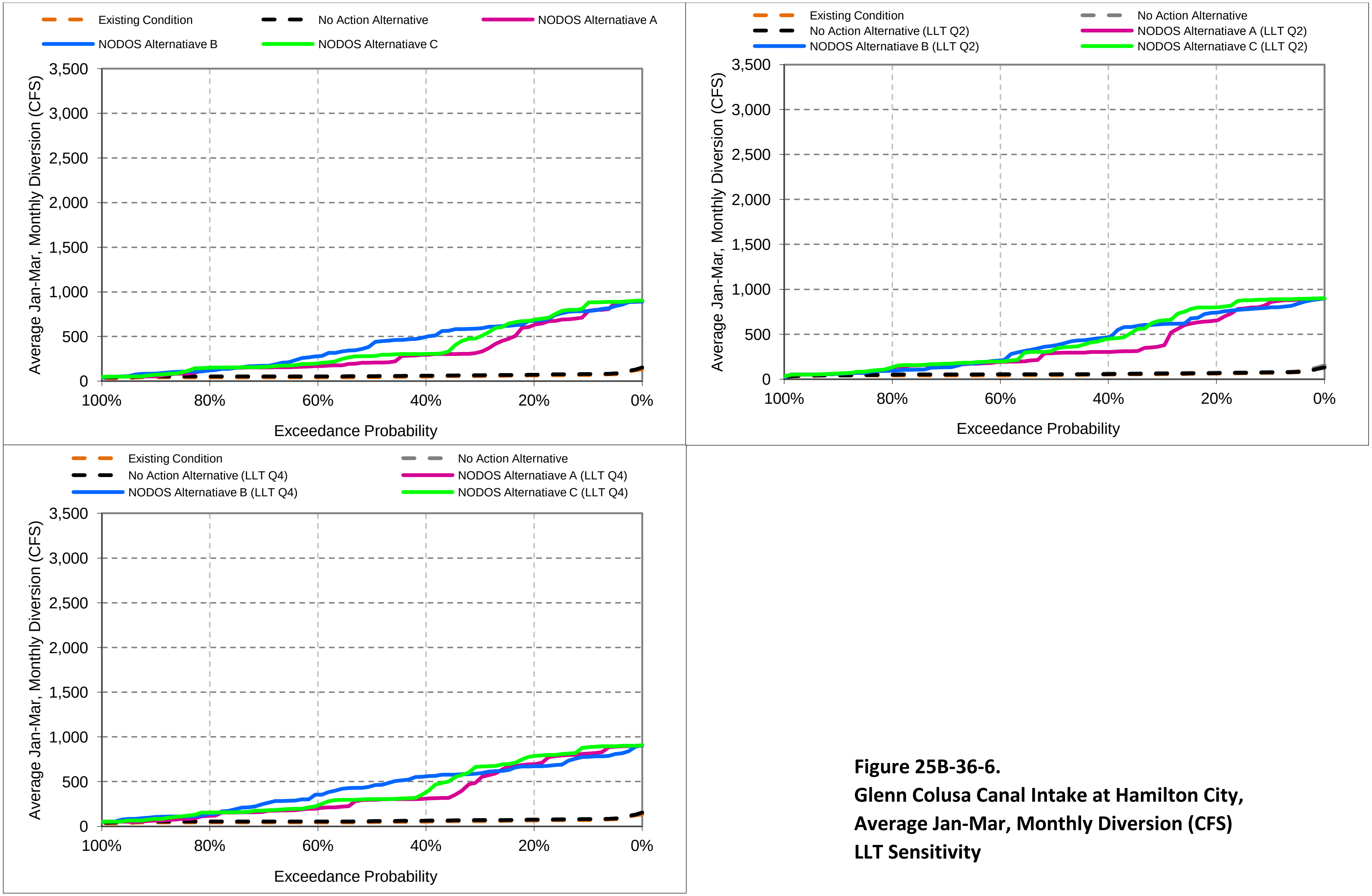
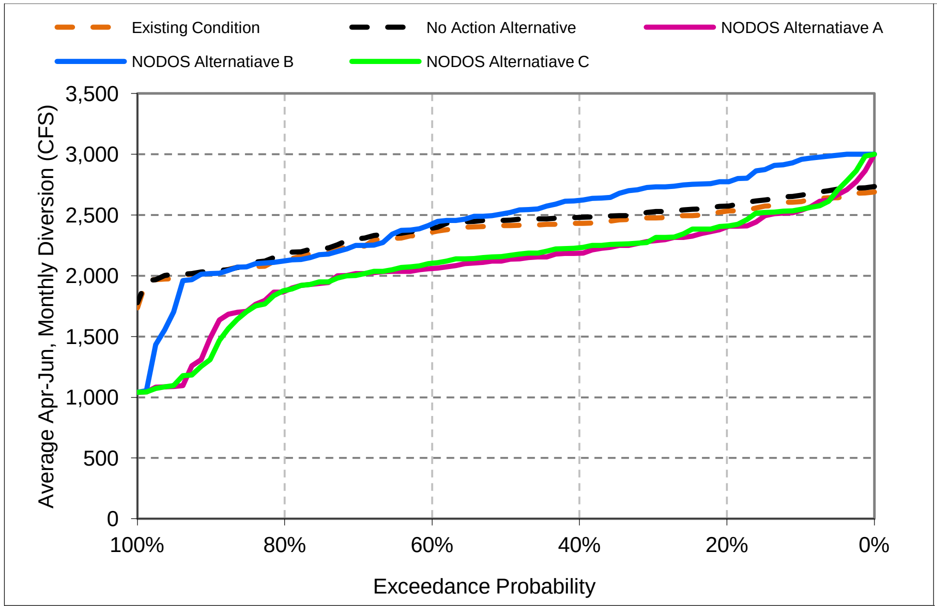
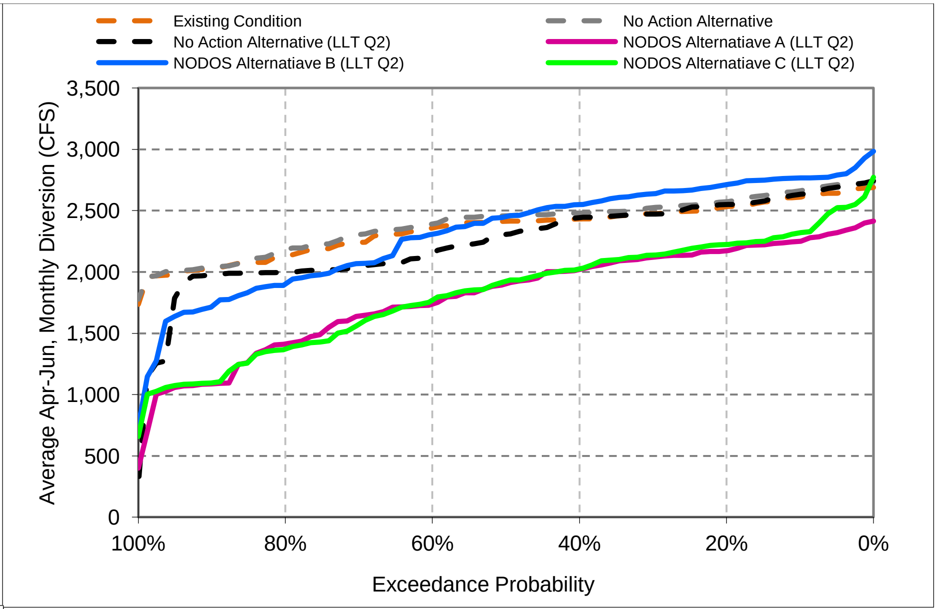


Figure 25B-36-6.
Glenn Colusa Canal Intake at Hamilton City,
Average Jan-Mar, Monthly Diversion (CFS)
LLT Sensitivity





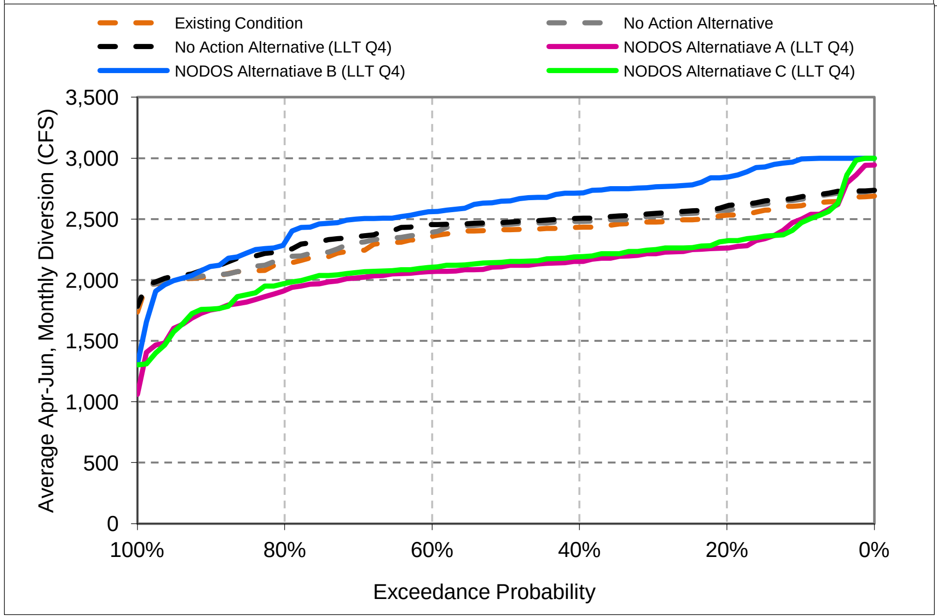
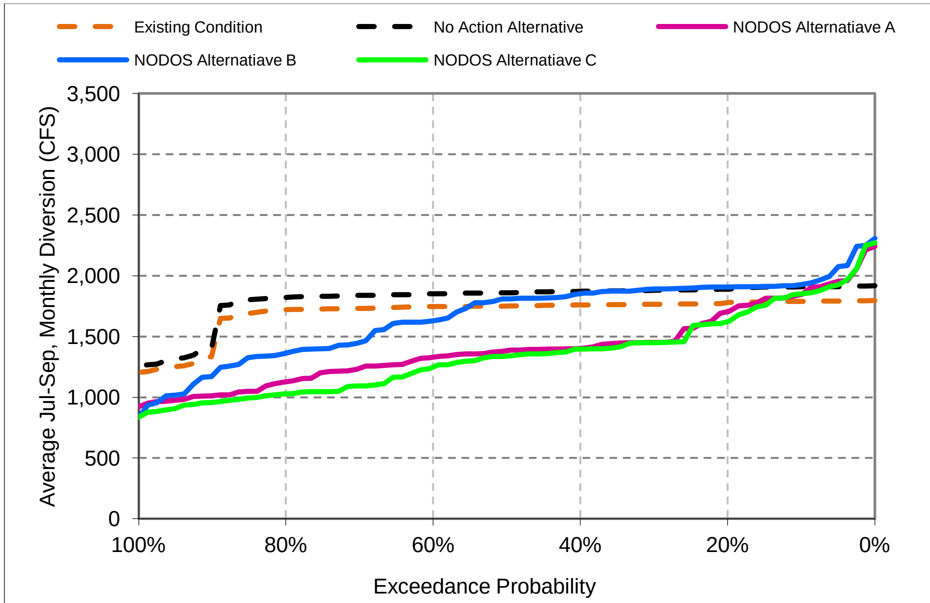
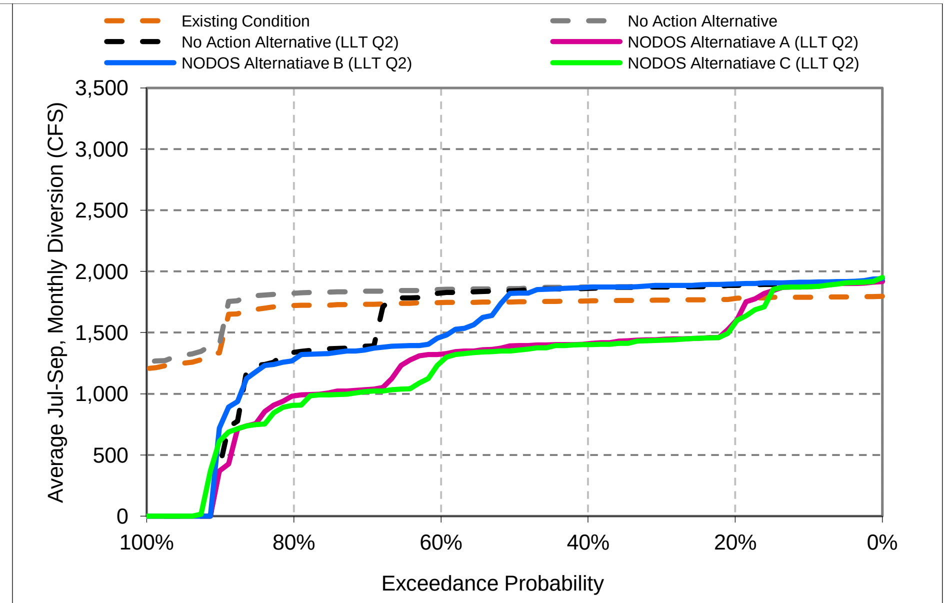


Figure 25B-36-7.
Glenn Colusa Canal Intake at Hamilton City,
Average Apr-Jun, Monthly Diversion (CFS)
LLT Sensitivity





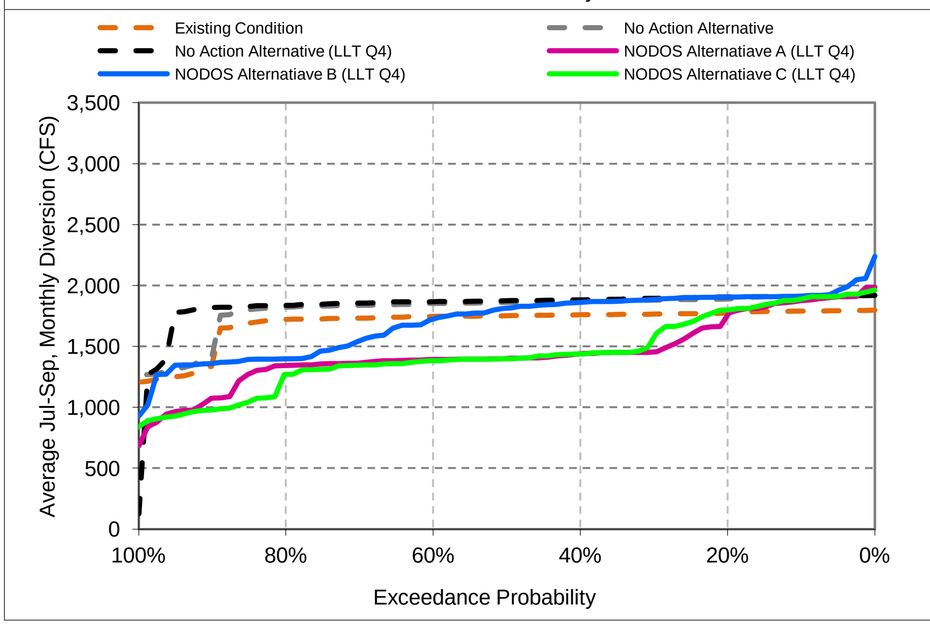


Figure 25B-36-8.
Glenn Colusa Canal Intake at Hamilton City,
Average Jul-Sep, Monthly Diversion (CFS)
LLT Sensitivity

Table 25B-37-1.
Sacramento River below Hamilton City
Monthly Flow (CFS)
ELT and LLT trend

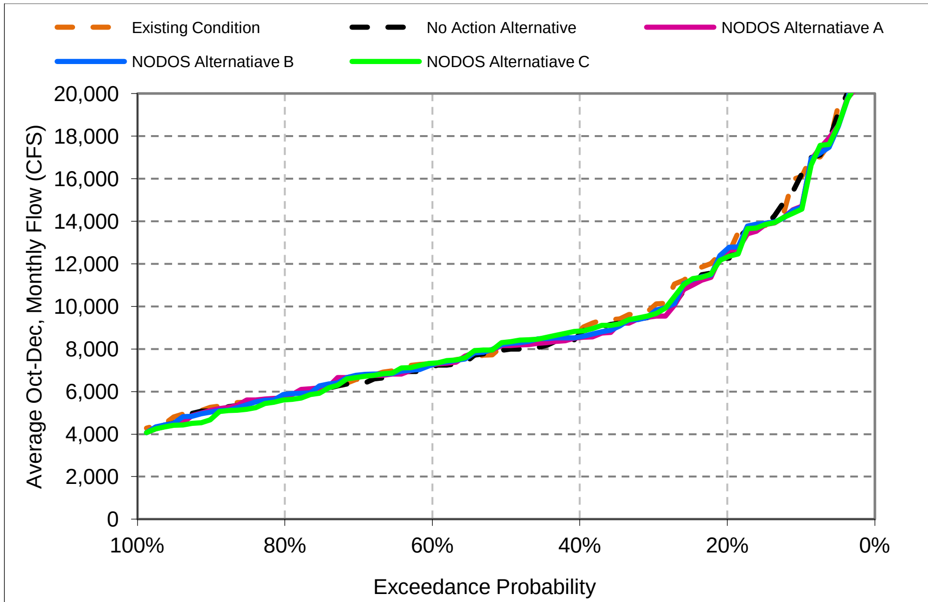
Long Term Average[1]

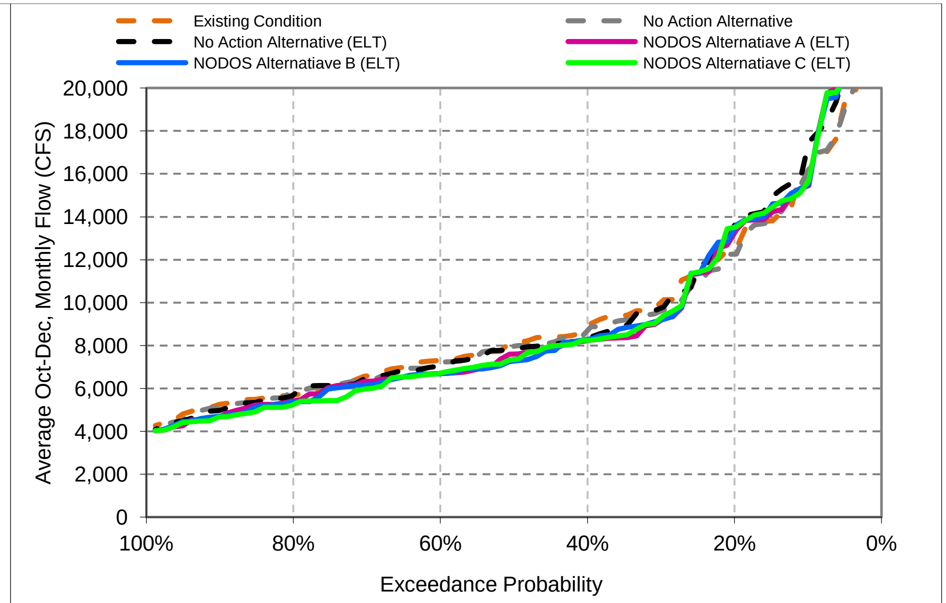
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	9,414	--	+251	+158	18,122	--	+671	+962	9,161	--	-191	-89	8,622	--	-19	+239
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	9,367	-47	-289	-410	16,996	-1,126	-1,182	-1,154	9,186	+24	+165	+45	8,942	+321	+396	+492
NODOS Alternative B	9,402	-13	-290	-358	16,555	-1,567	-1,570	-1,582	8,444	-718	-724	-870	8,714	+93	+160	+205
NODOS Alternative C	9,376	-39	-333	-398	16,799	-1,323	-1,344	-1,362	9,116	-46	+71	-47	9,063	+441	+518	+644

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	16,116	--	+1,113	+176	36,065	--	+2,113	+3,133	14,014	--	-602	-994	10,656	--	-2	+498
Change in Alternative from No Action Alternative:																
NODOS Alternative A	15,833	-283	-247	-523	35,081	-983	-836	-810	14,225	+210	+292	+112	10,767	+111	+470	+395
NODOS Alternative B	15,865	-251	-207	-429	34,014	-2,050	-1,713	-1,804	13,101	-914	-1,176	-1,271	10,662	+6	+304	+138
NODOS Alternative C	15,817	-299	-225	-513	34,779	-1,286	-1,095	-1,063	14,042	+28	+111	-121	10,797	+141	+501	+500
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	8,948	--	-54	+64	18,136	--	+735	+833	8,651	--	-188	+193	9,020	--	+209	+568
Change in Alternative from No Action Alternative:																
NODOS Alternative A	8,915	-33	-364	-418	16,845	-1,291	-1,245	-1,155	8,516	-135	+139	+31	9,300	+280	+99	+524
NODOS Alternative B	9,035	+87	-303	-208	16,226	-1,909	-1,951	-1,946	7,908	-744	-630	-925	9,125	+105	+35	+150
NODOS Alternative C	9,154	+206	-301	-318	16,600	-1,536	-1,480	-1,611	8,495	-156	+47	-25	9,498	+478	+377	+715
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	7,003	--	-42	+357	10,970	--	-143	-227	7,426	--	+61	+286	8,023	--	-59	+319
Change in Alternative from No Action Alternative:																
NODOS Alternative A	7,152	+149	-312	-375	9,187	-1,783	-1,891	-1,827	7,422	-4	+154	+208	8,434	+412	+465	+578
NODOS Alternative B	7,161	+158	-367	-539	9,090	-1,880	-1,797	-1,710	6,755	-671	-594	-505	8,119	+97	+93	+269
NODOS Alternative C	7,182	+179	-426	-439	8,964	-2,006	-1,942	-1,974	7,387	-39	+69	+210	8,563	+541	+626	+897
Lower (100%-75% exceedence)																
Change in No Action Alternative:	5,255	--	-55	+33	6,977	--	-57	+47	6,447	--	-21	+193	6,779	--	-213	-408
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,244	-12	-236	-319	6,491	-486	-793	-854	6,464	+17	+74	-164	7,261	+483	+539	+474
NODOS Alternative B	5,222	-33	-285	-254	6,519	-458	-846	-891	5,906	-541	-485	-766	6,943	+164	+198	+263
NODOS Alternative C	5,027	-228	-387	-318	6,471	-506	-894	-841	6,426	-21	+56	-239	7,389	+610	+567	+478

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





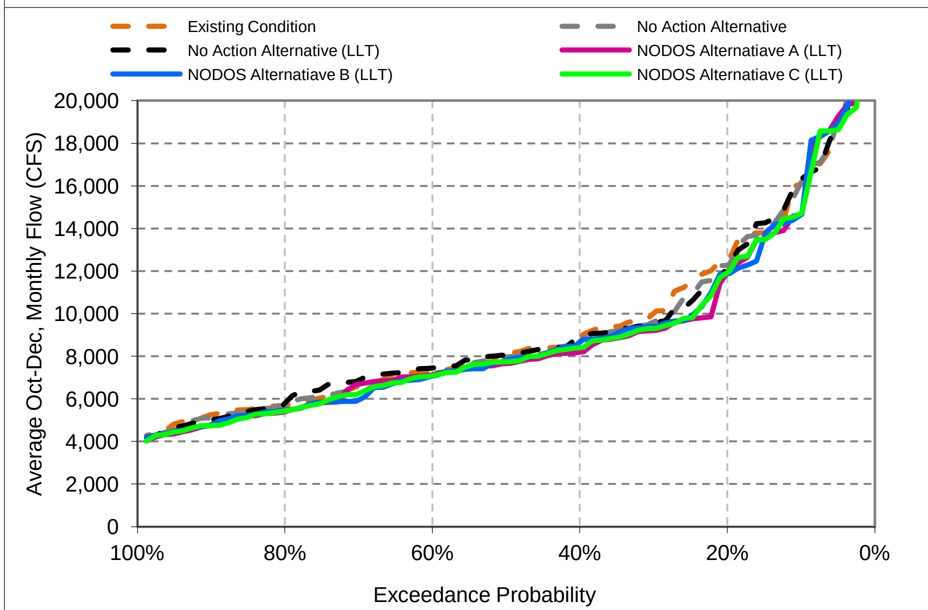
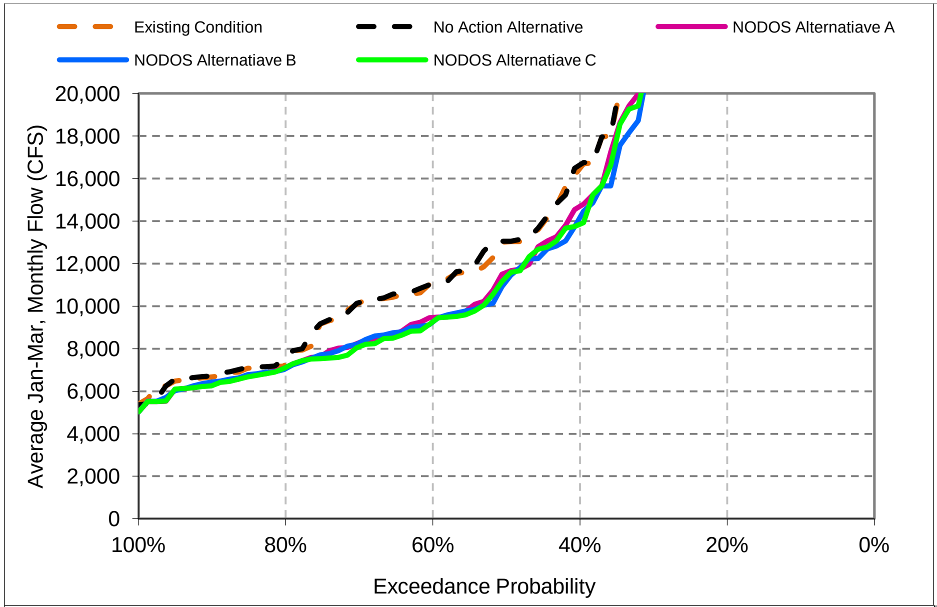
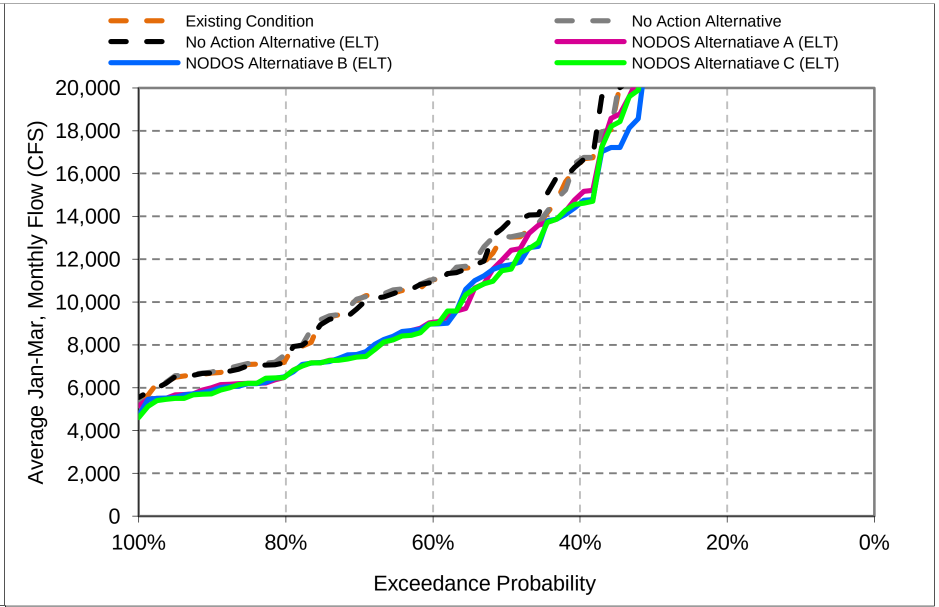


Figure 25B-37-1.
Sacramento River below Hamilton City,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend





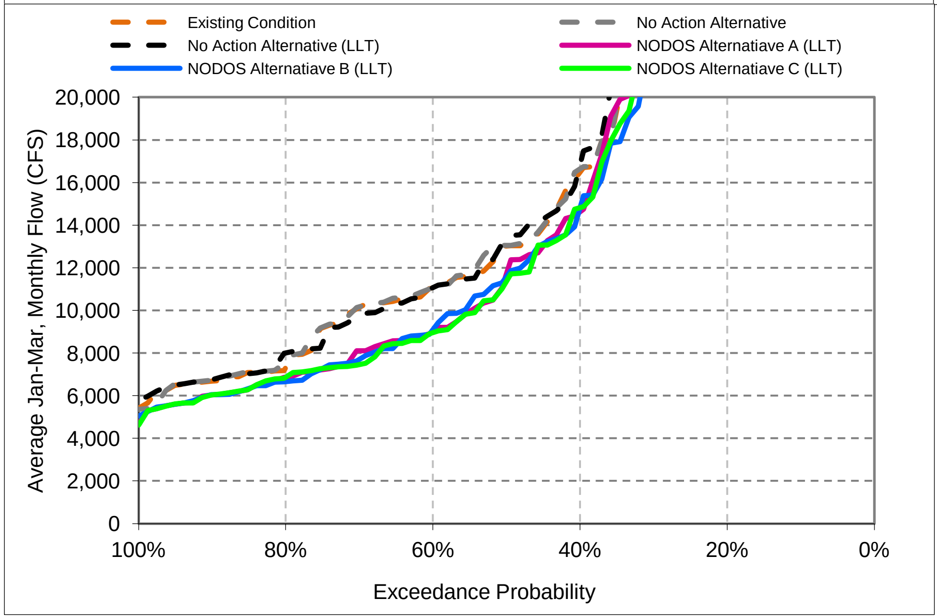
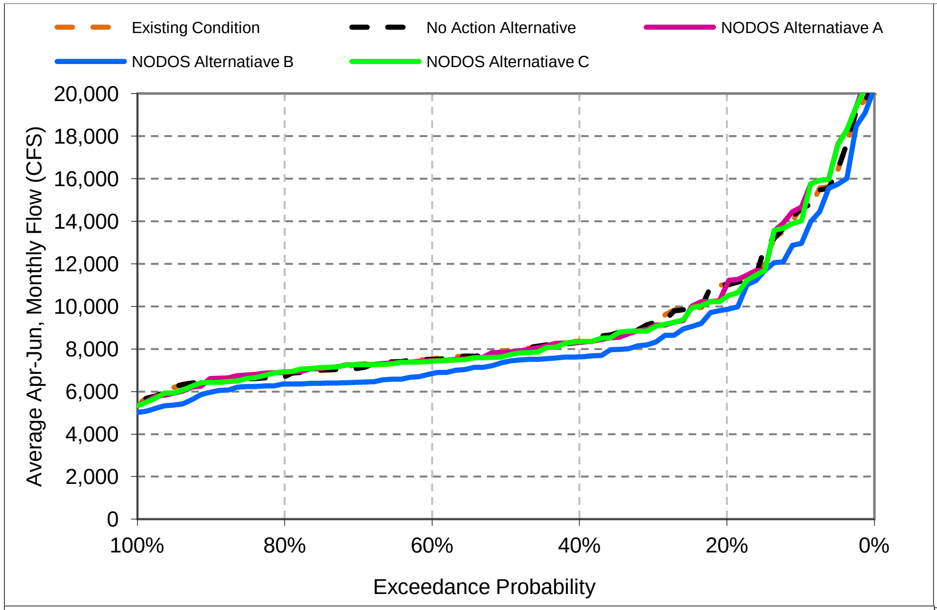
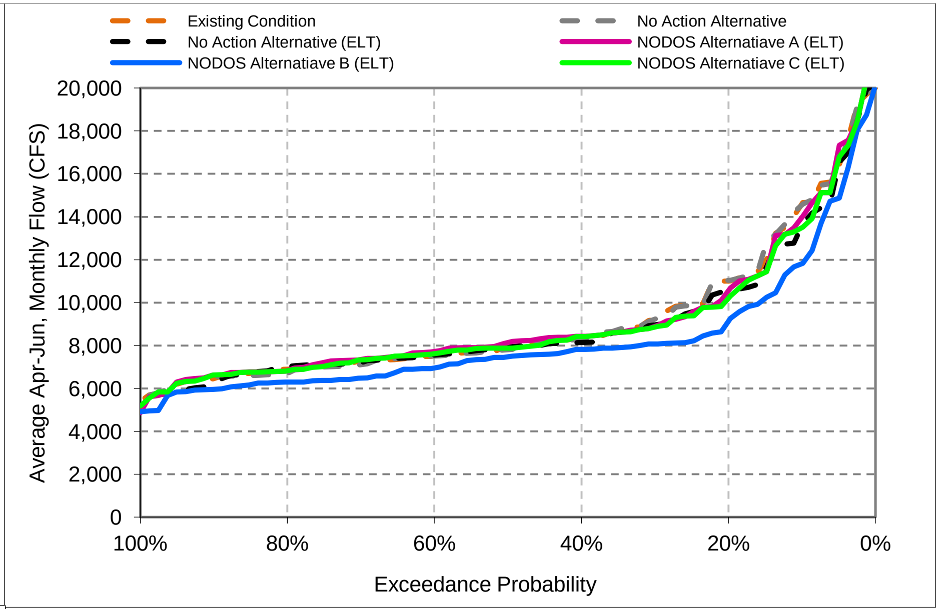


Figure 25B-37-2.
Sacramento River below Hamilton City,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend





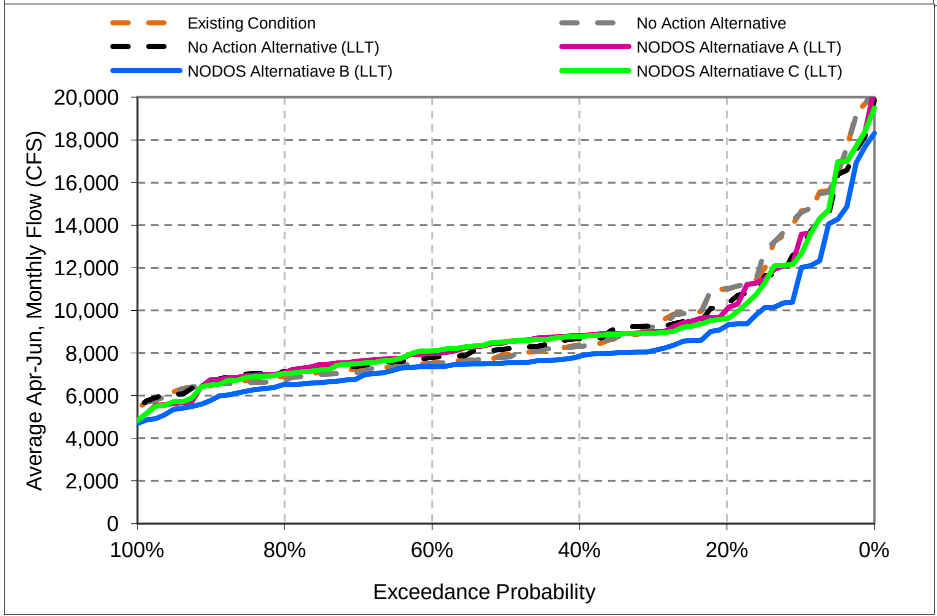


Figure 25B-37-3.
Sacramento River below Hamilton City,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend

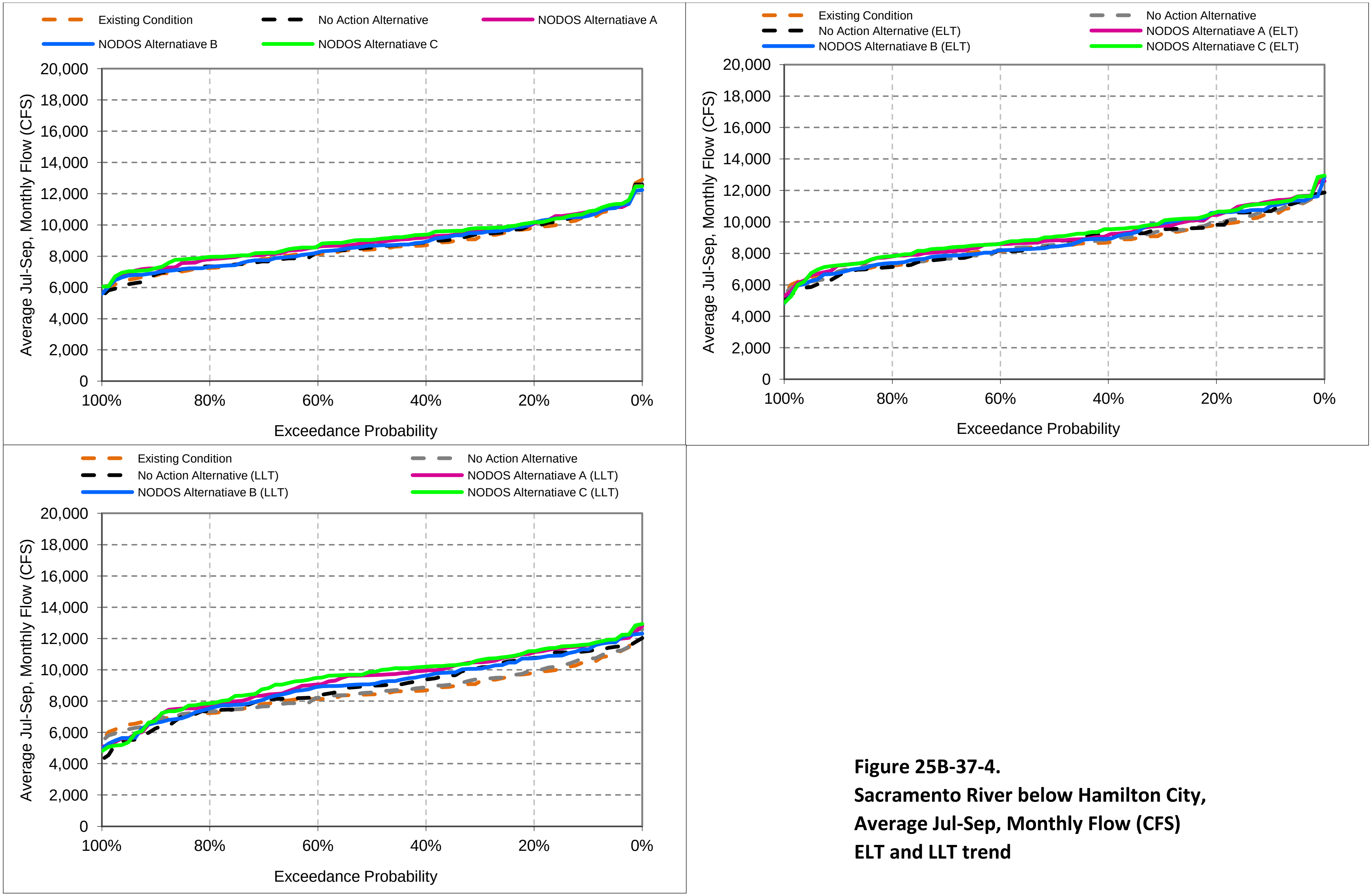


Figure 25B-37-4.
Sacramento River below Hamilton City,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-37-2.
Sacramento River below Hamilton City
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	9,414	--	-1,398	+1,611	18,122	--	-2,704	+4,750	9,161	--	-741	+1,352	8,622	--	-809	+1,067
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	9,367	-47	-370	-407	16,996	-1,126	-1,185	-1,150	9,186	+24	+69	-1	8,942	+321	+344	+480
NODOS Alternative B	9,402	-13	-362	-387	16,555	-1,567	-1,388	-1,579	8,444	-718	-757	-831	8,714	+93	+32	+170
NODOS Alternative C	9,376	-39	-392	-384	16,799	-1,323	-1,357	-1,300	9,116	-46	-15	-107	9,063	+441	+408	+563

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	16,116	--	-3,051	+3,565	36,065	--	-5,253	+10,573	14,014	--	-2,502	+2,712	10,656	--	-30	+846
Change in Alternative from No Action Alternative:																
NODOS Alternative A	15,833	-283	-600	-655	35,081	-983	-727	-844	14,225	+210	+266	-116	10,767	+111	+108	+467
NODOS Alternative B	15,865	-251	-705	-731	34,014	-2,050	-1,748	-1,553	13,101	-914	-1,322	-1,325	10,662	+6	-112	+49
NODOS Alternative C	15,817	-299	-646	-627	34,779	-1,286	-1,144	-989	14,042	+28	+209	-267	10,797	+141	+301	+471
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	8,948	--	-1,131	+974	18,136	--	-3,728	+5,991	8,651	--	-191	+1,248	9,020	--	-459	+1,227
Change in Alternative from No Action Alternative:																
NODOS Alternative A	8,915	-33	-420	-432	16,845	-1,291	-1,705	-1,048	8,516	-135	+26	+64	9,300	+280	+503	+386
NODOS Alternative B	9,035	+87	-425	-359	16,226	-1,909	-1,765	-1,846	7,908	-744	-590	-855	9,125	+105	-66	+153
NODOS Alternative C	9,154	+206	-355	-256	16,600	-1,536	-1,893	-1,270	8,495	-156	-67	+2	9,498	+478	+647	+554
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	7,003	--	-753	+955	10,970	--	-1,404	+1,674	7,426	--	+37	+852	8,023	--	-1,004	+1,079
Change in Alternative from No Action Alternative:																
NODOS Alternative A	7,152	+149	-319	-200	9,187	-1,783	-1,648	-1,621	7,422	-4	+67	+157	8,434	+412	+496	+556
NODOS Alternative B	7,161	+158	-292	-209	9,090	-1,880	-1,451	-1,791	6,755	-671	-574	-537	8,119	+97	+193	+156
NODOS Alternative C	7,182	+179	-362	-191	8,964	-2,006	-1,631	-1,845	7,387	-39	+39	+62	8,563	+541	+427	+684
Lower (100%-75% exceedence)																
Change in No Action Alternative:	5,255	--	-576	+851	6,977	--	-419	+676	6,447	--	-246	+566	6,779	--	-1,734	+1,126
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,244	-12	-128	-327	6,491	-486	-708	-1,104	6,464	+17	-87	-97	7,261	+483	+283	+510
NODOS Alternative B	5,222	-33	-8	-232	6,519	-458	-609	-1,148	5,906	-541	-525	-594	6,943	+164	+115	+319
NODOS Alternative C	5,027	-228	-193	-451	6,471	-506	-797	-1,120	6,426	-21	-239	-211	7,389	+610	+270	+548

1 Based on CALSIM II 82-year simulation period
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3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

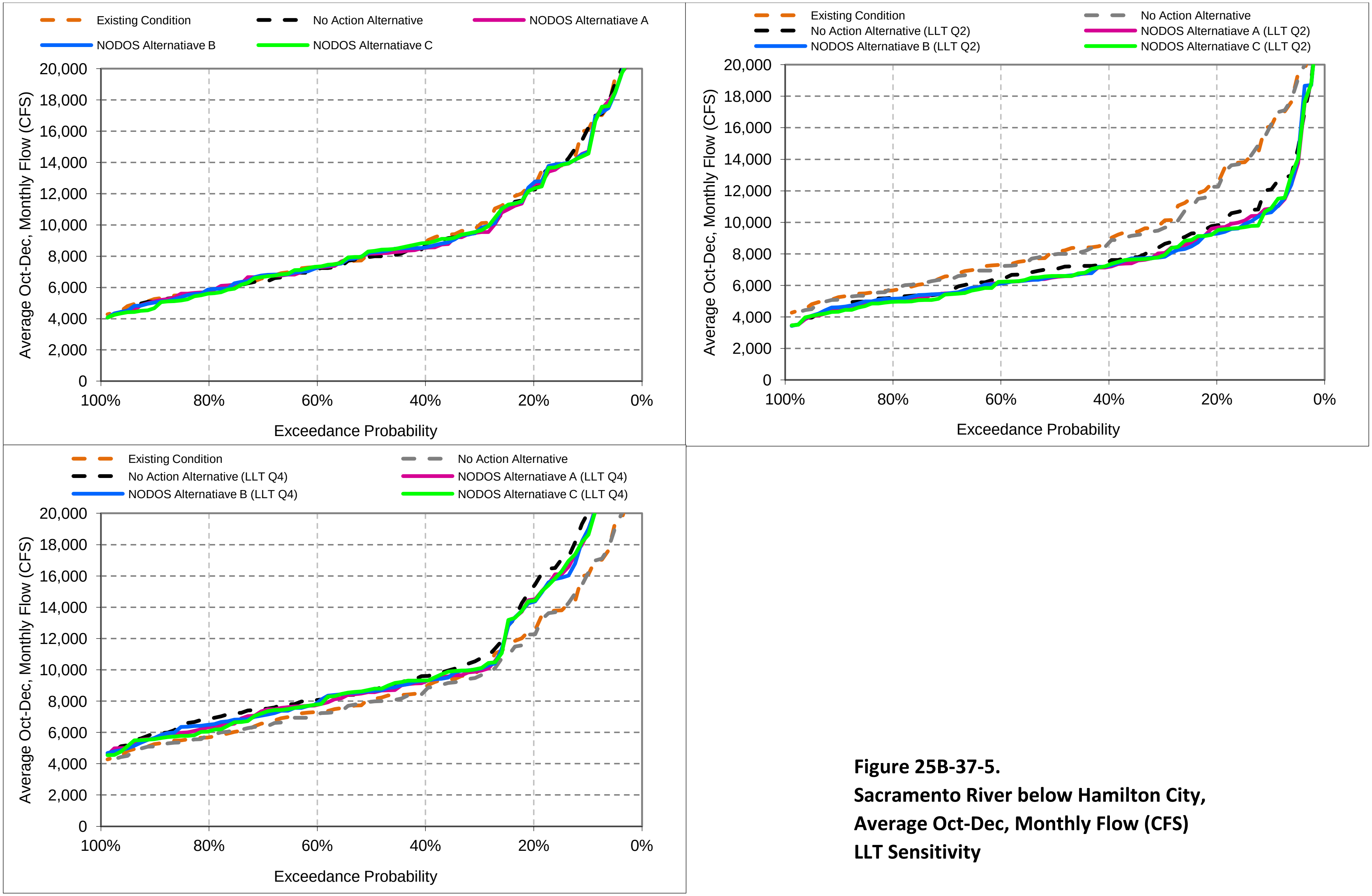


Figure 25B-37-5.
Sacramento River below Hamilton City,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity

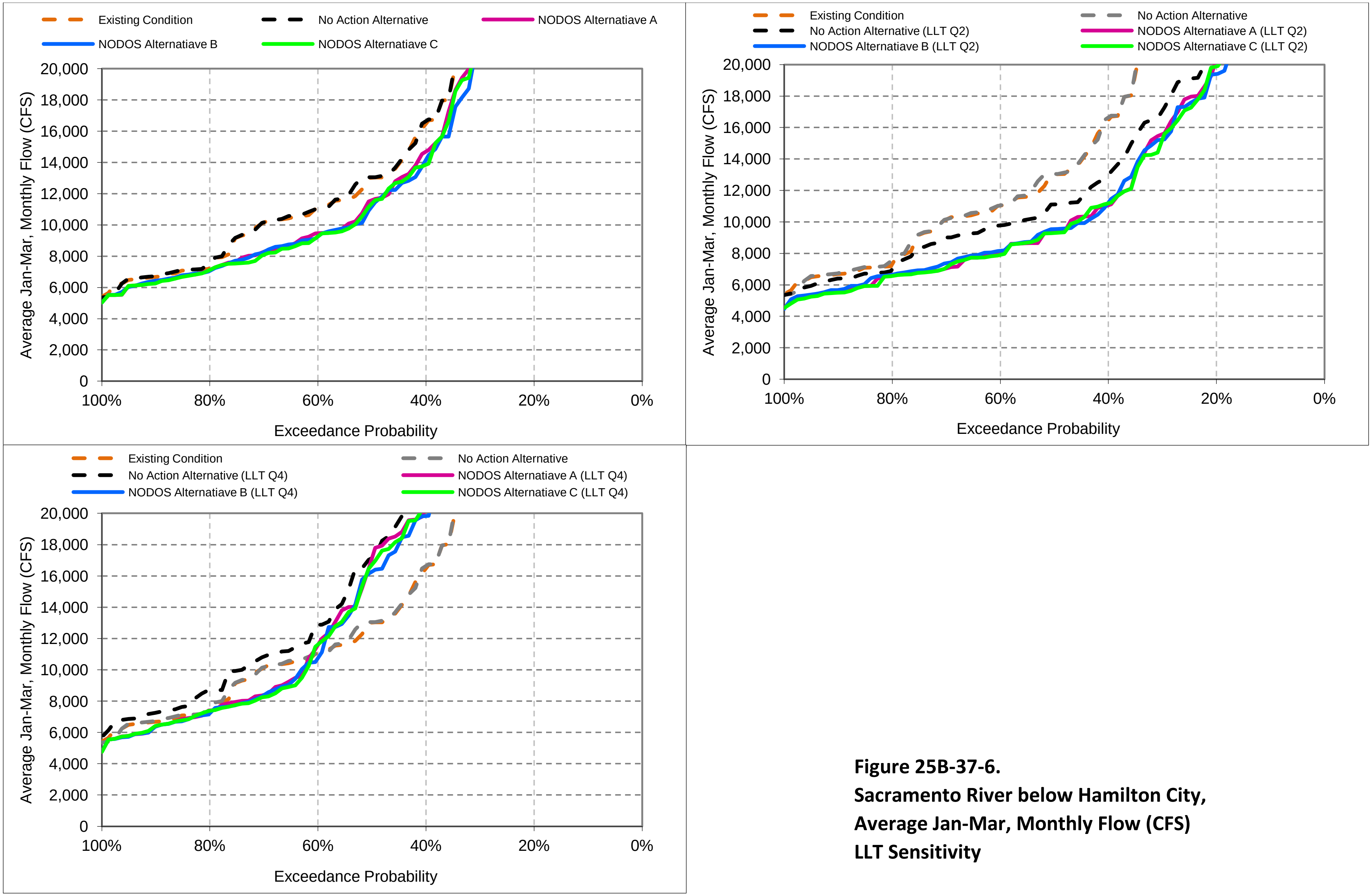
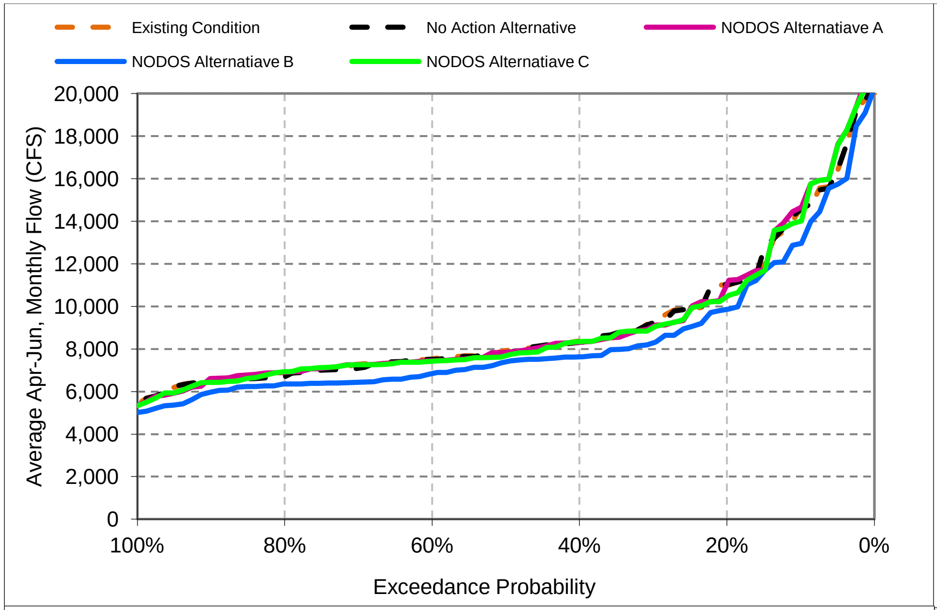
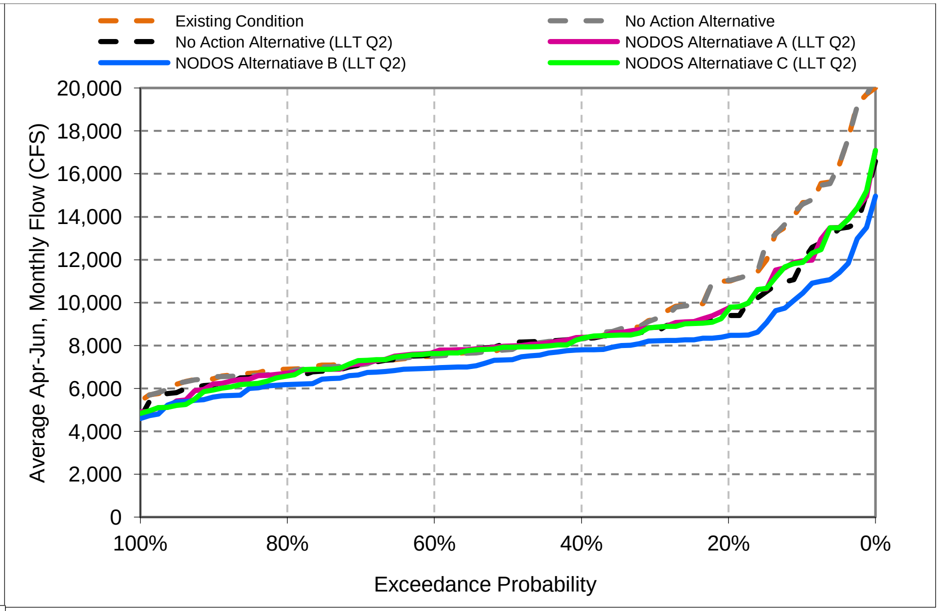


Figure 25B-37-6.
Sacramento River below Hamilton City, Average Jan-Mar, Monthly Flow (CFS) LLT Sensitivity





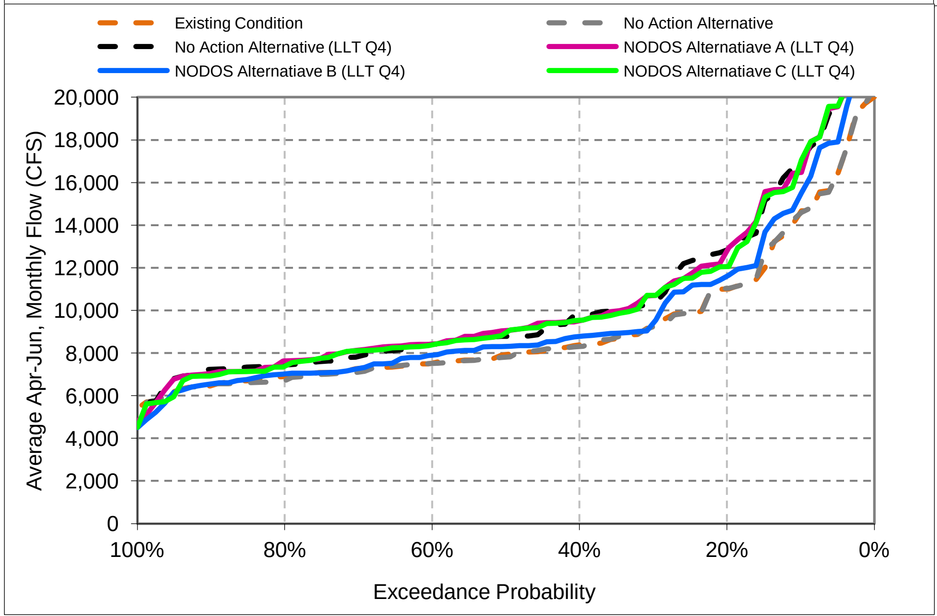
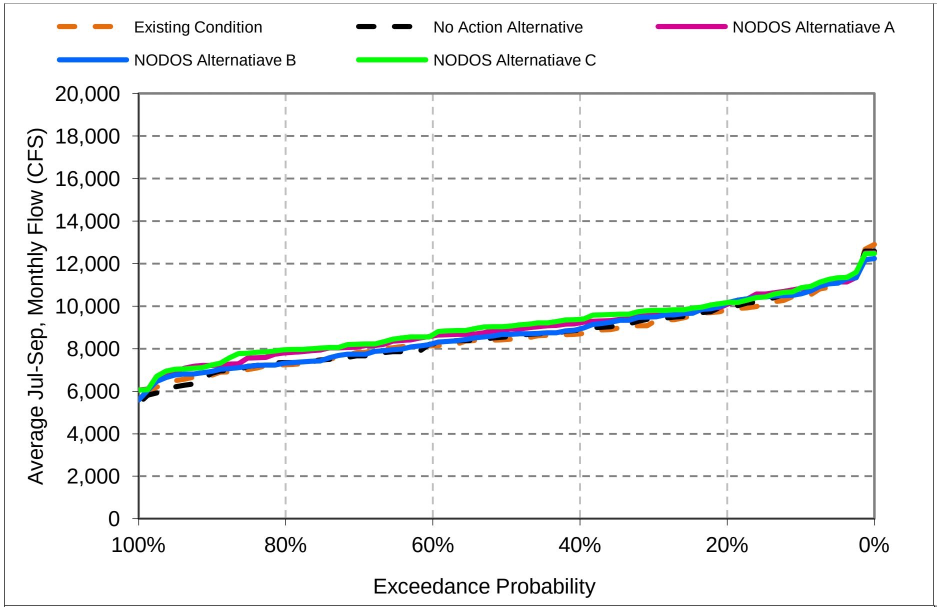
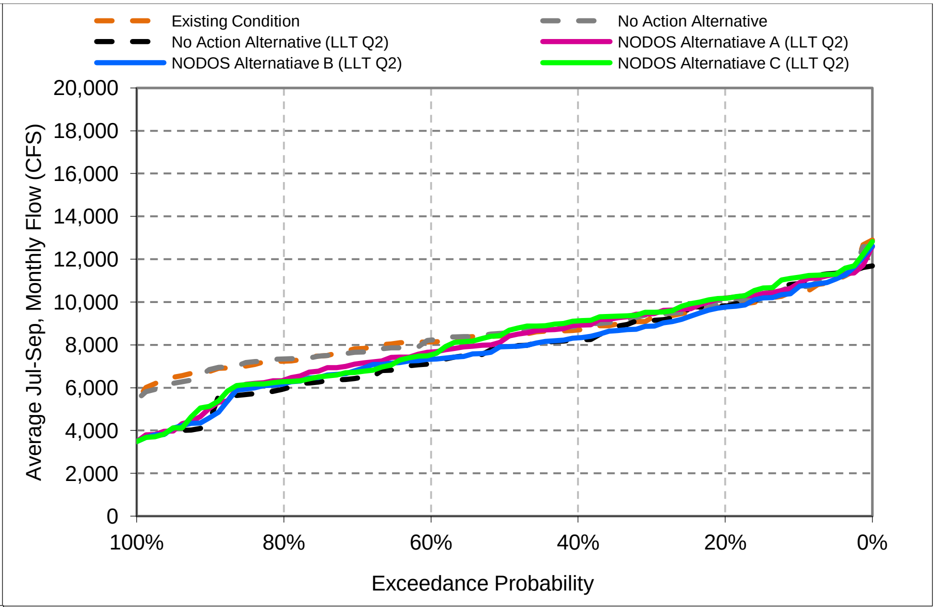


Figure 25B-37-7.
Sacramento River below Hamilton City,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity





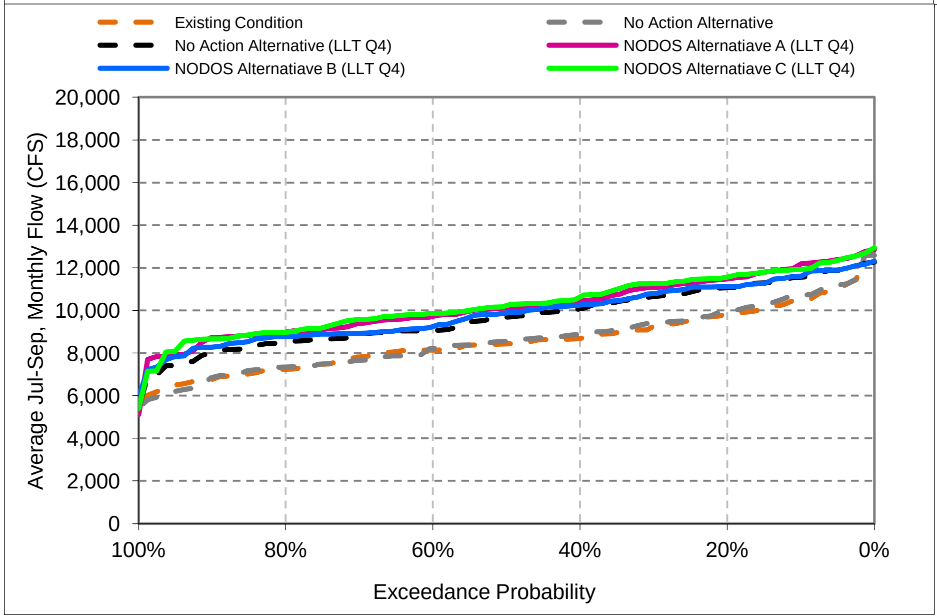


Figure 25B-37-8.
Sacramento River below Hamilton City,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-38-1.
Delevan Intake and Pipeline
Monthly Diversion (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	136	+136	+128	+157	575	+575	+601	+614	276	+276	+345	+373	165	+165	+184	+211
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	136	+136	+130	+156	663	+663	+669	+703	279	+279	+339	+347	168	+168	+174	+218

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	456	+456	+437	+533	1,185	+1,185	+1,226	+1,225	638	+638	+722	+698	500	+500	+506	+538
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	457	+457	+449	+531	1,323	+1,323	+1,323	+1,367	662	+662	+671	+648	523	+523	+511	+558
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	70	+70	+61	+76	644	+644	+739	+689	329	+329	+461	+475	150	+150	+224	+300
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	72	+72	+55	+76	780	+780	+823	+851	325	+325	+471	+466	140	+140	+176	+309
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	409	+409	+377	+440	133	+133	+187	+317	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	478	+478	+455	+490	125	+125	+210	+271	0	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	56	+56	+56	+98	0	+0	+6	+3	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	66	+66	+73	+100	0	+0	+6	+3	0	+0	+0	+0

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

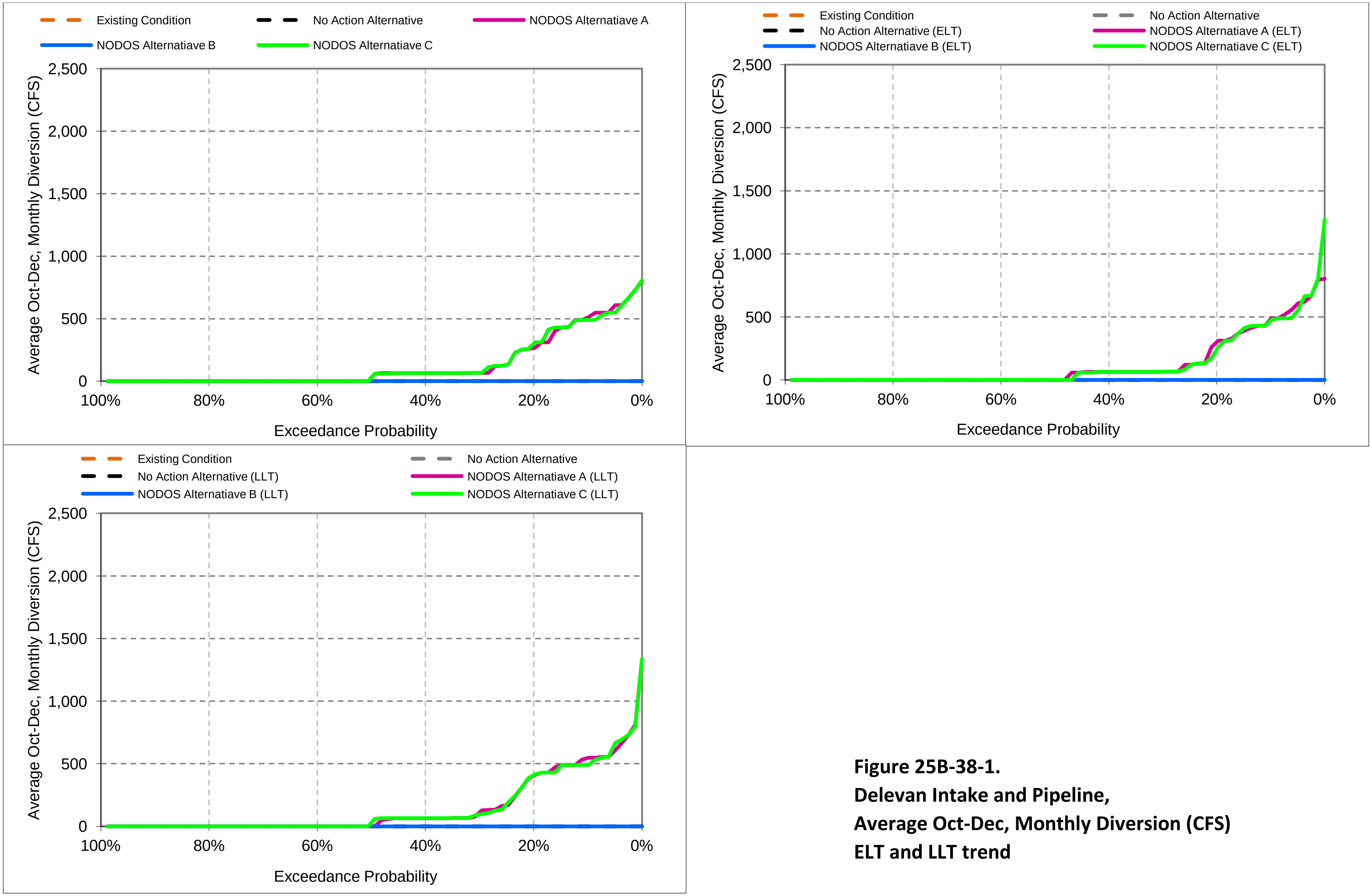
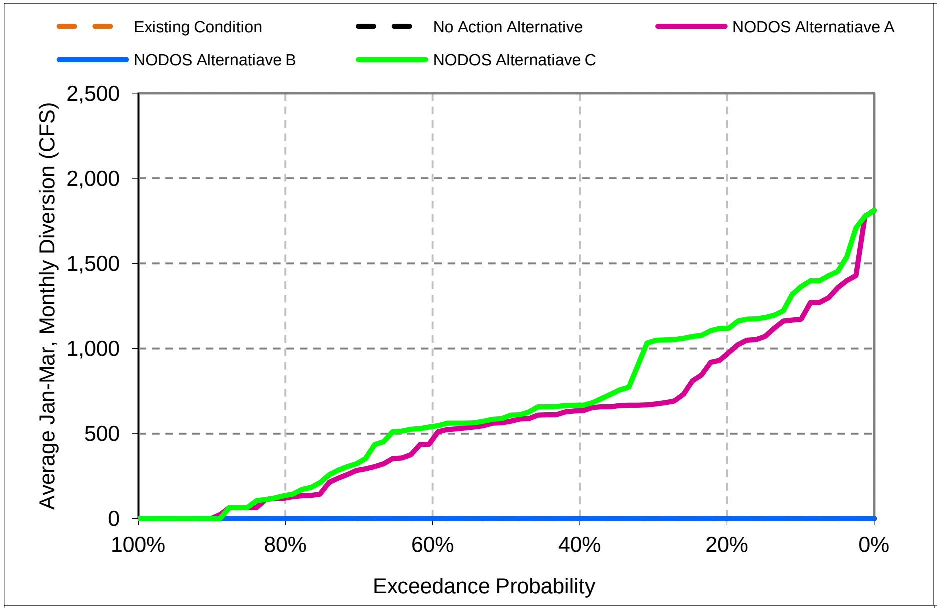
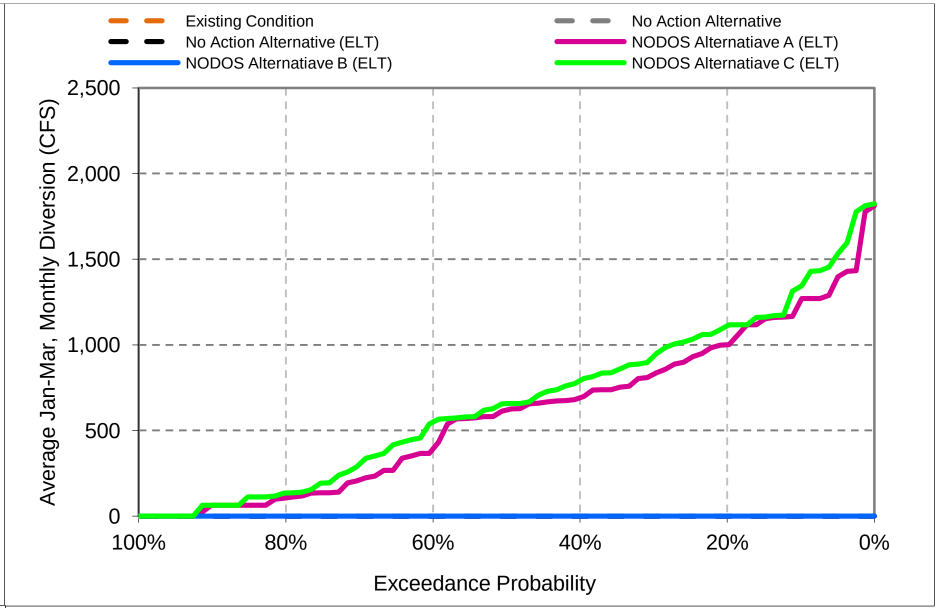


Figure 25B-38-1.
Delevan Intake and Pipeline,
Average Oct-Dec, Monthly Diversion (CFS)
ELT and LLT trend

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.





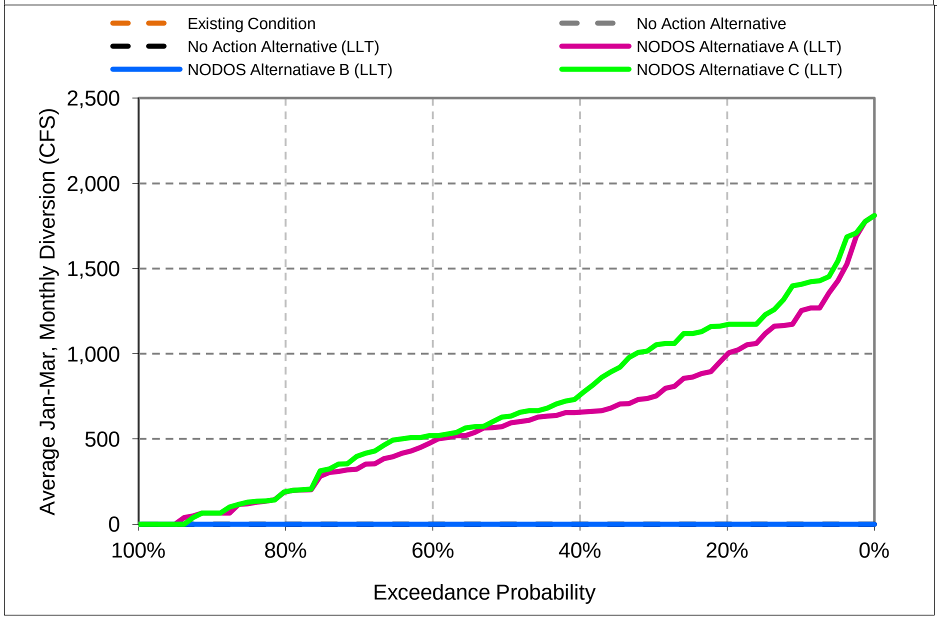


Figure 25B-38-2.
Delevan Intake and Pipeline,
Average Jan-Mar, Monthly Diversion (CFS)
ELT and LLT trend

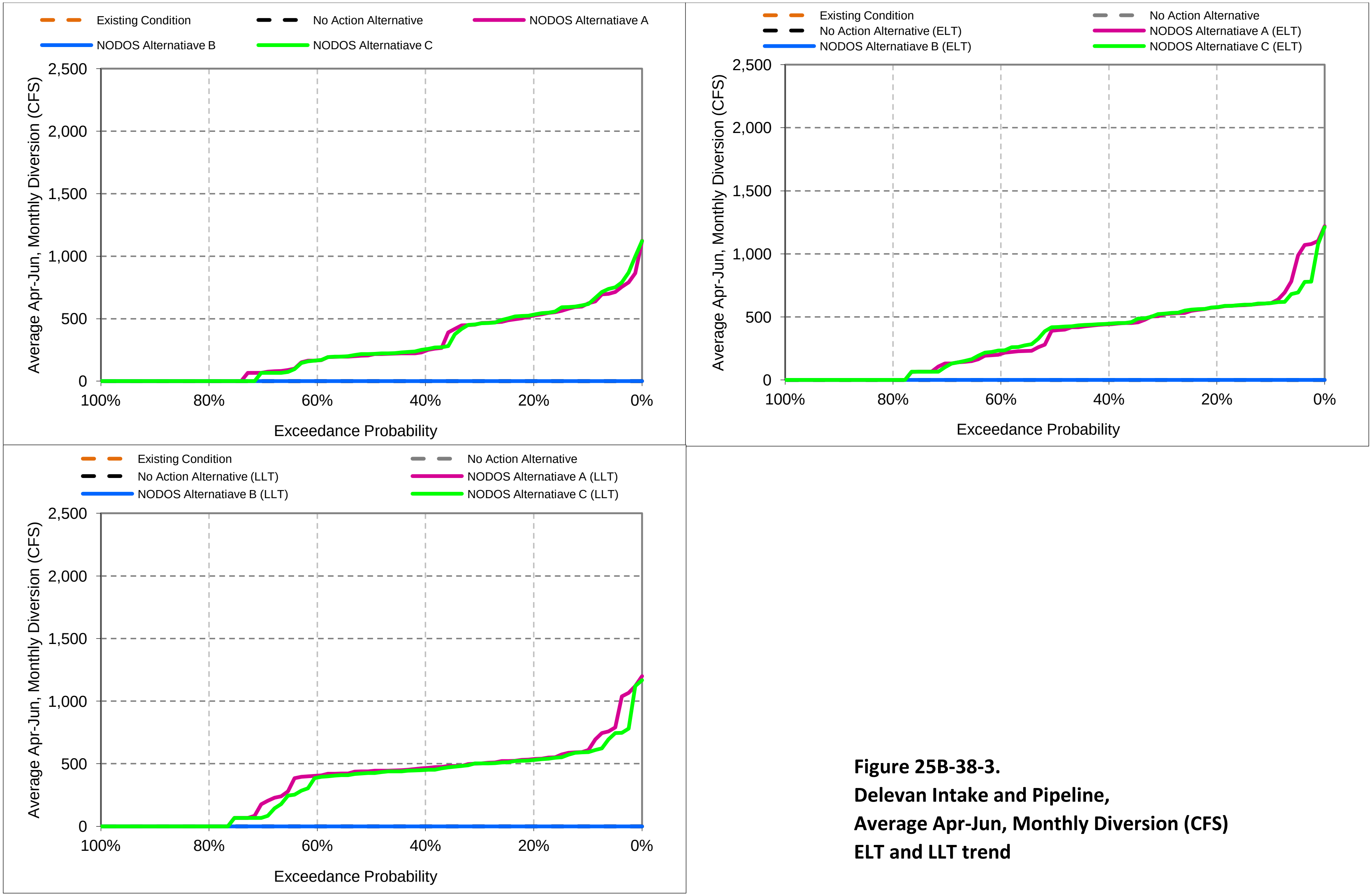
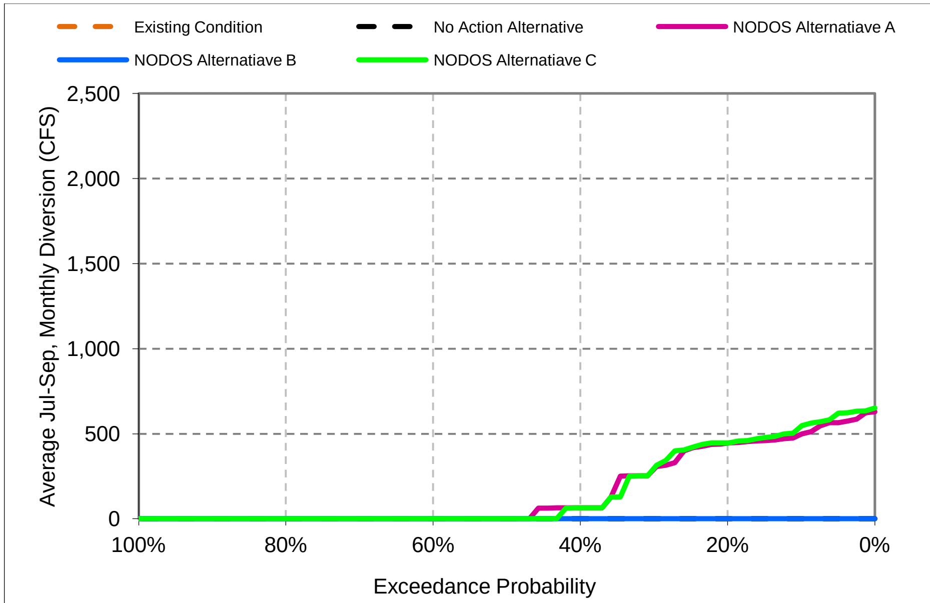
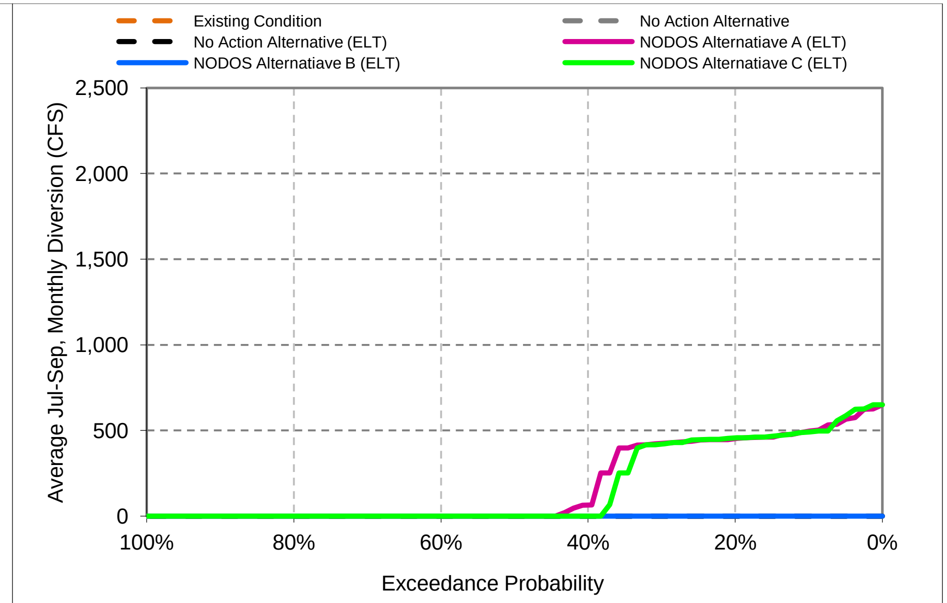


Figure 25B-38-3.
Delevan Intake and Pipeline,
Average Apr-Jun, Monthly Diversion (CFS)
ELT and LLT trend





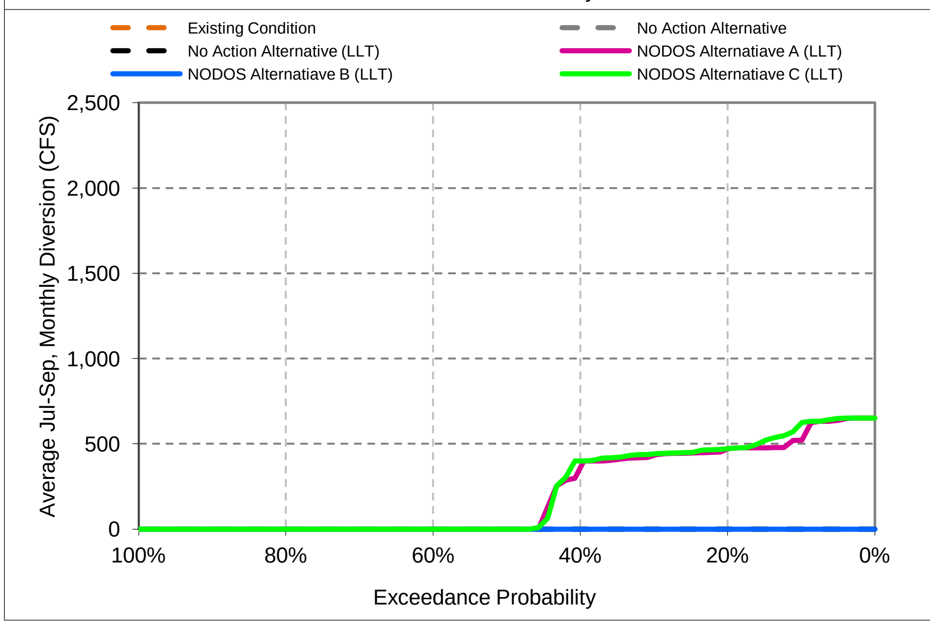


Figure 25B-38-4.
Delevan Intake and Pipeline,
Average Jul-Sep, Monthly Diversion (CFS)
ELT and LLT trend

Table 25B-38-2.
Delevan Intake and Pipeline
Monthly Diversion (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	136	+136	+147	+144	575	+575	+633	+620	276	+276	+340	+288	165	+165	+180	+167
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	136	+136	+152	+148	663	+663	+708	+694	279	+279	+352	+298	168	+168	+179	+166

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	456	+456	+506	+464	1,185	+1,185	+1,270	+1,247	638	+638	+715	+610	500	+500	+507	+530
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	457	+457	+517	+485	1,323	+1,323	+1,425	+1,331	662	+662	+739	+617	523	+523	+511	+550
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	70	+70	+65	+91	644	+644	+772	+728	329	+329	+456	+441	150	+150	+207	+129
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	72	+72	+71	+87	780	+780	+877	+848	325	+325	+468	+460	140	+140	+199	+103
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+6	409	+409	+416	+452	133	+133	+186	+99	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+3	478	+478	+446	+517	125	+125	+199	+112	0	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	0	+0	+0	+0	56	+56	+69	+52	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative B	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0	0	+0	+0	+0
NODOS Alternative C	0	+0	+0	+0	66	+66	+79	+78	0	+0	+0	+0	0	+0	+0	+0

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

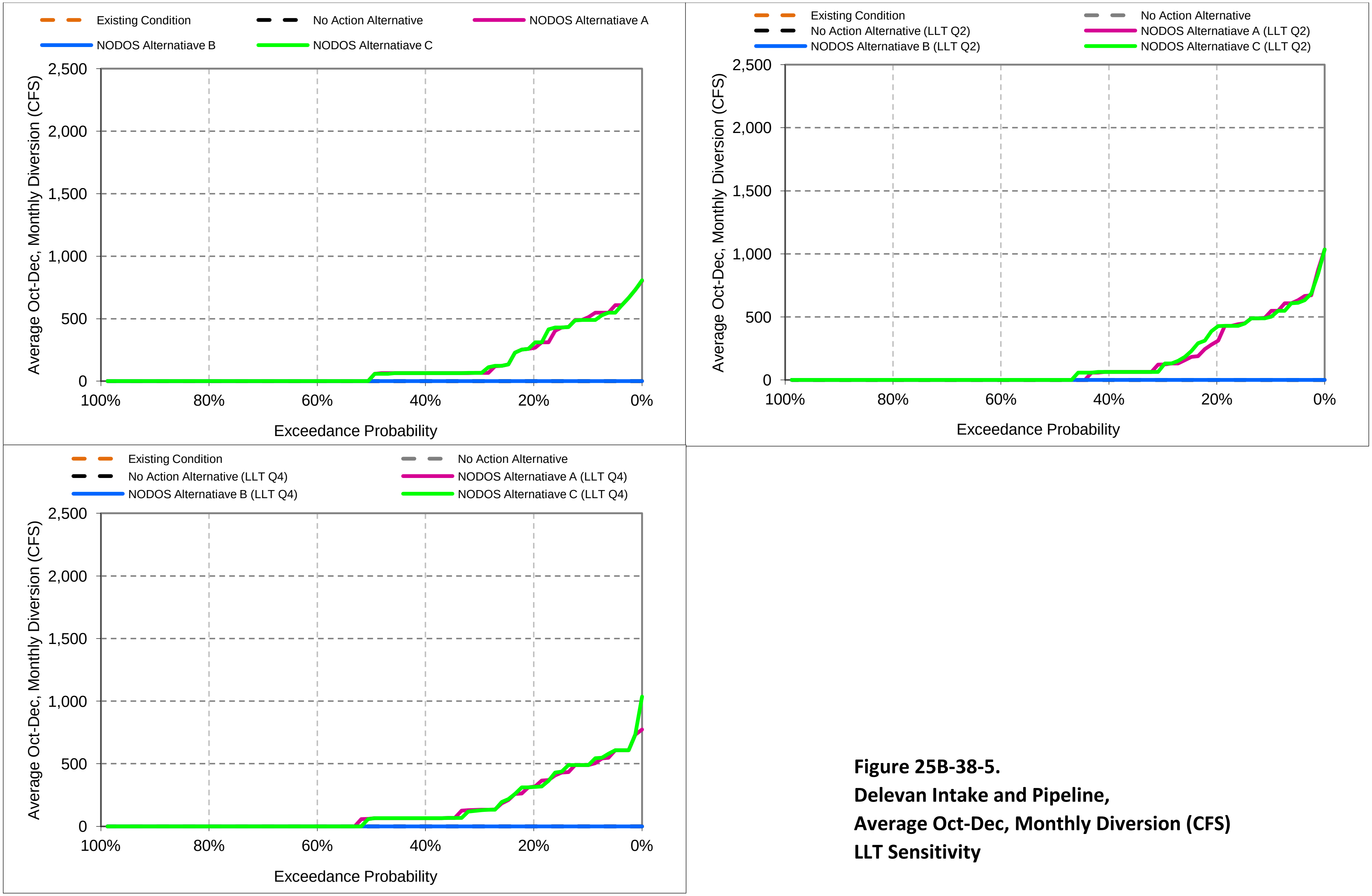
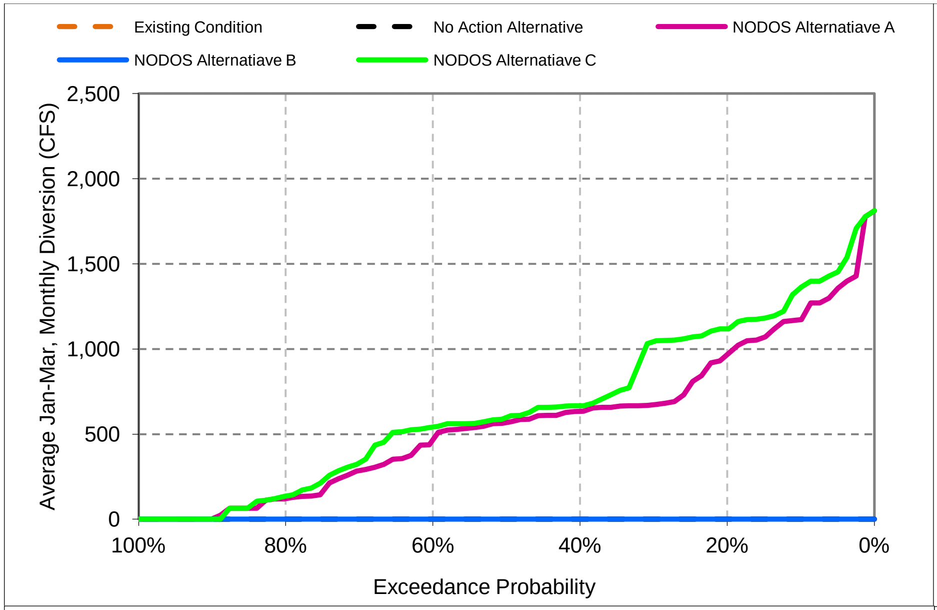
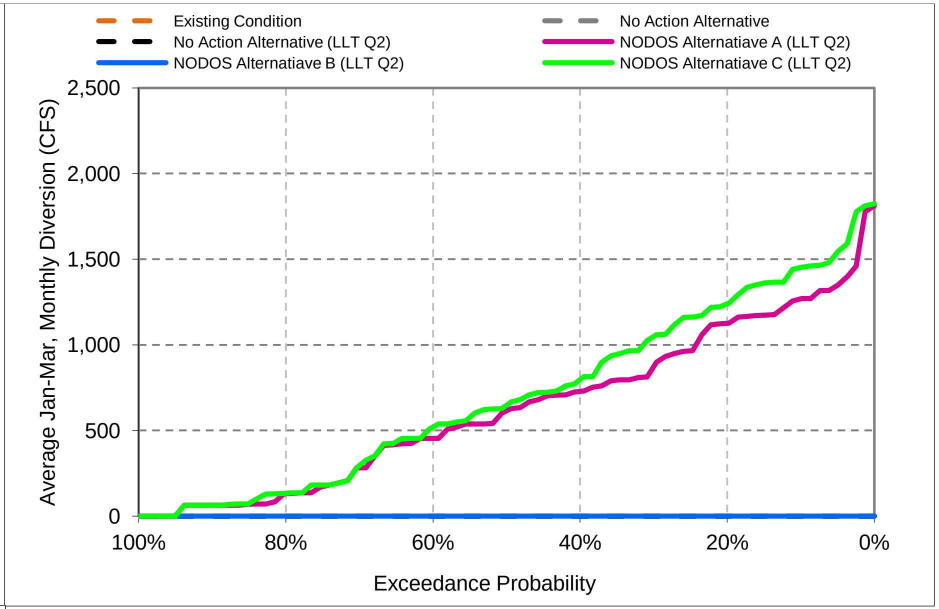


Figure 25B-38-5.
Delevan Intake and Pipeline,
Average Oct-Dec, Monthly Diversion (CFS)
LLT Sensitivity





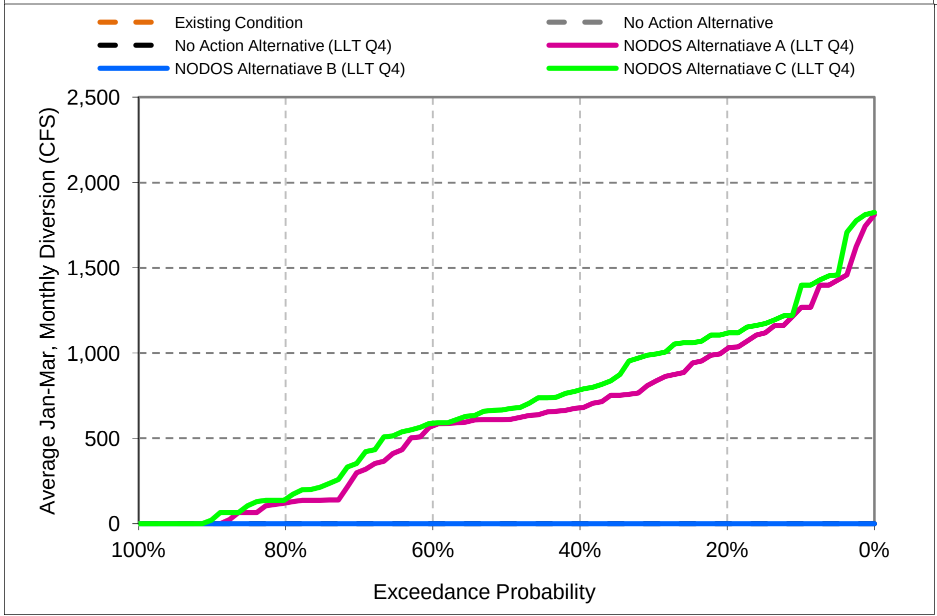
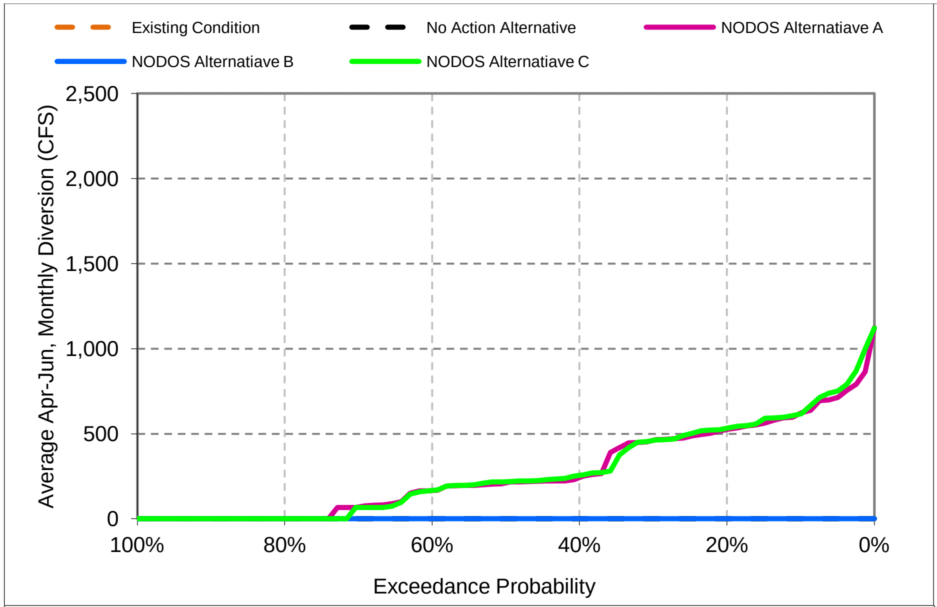
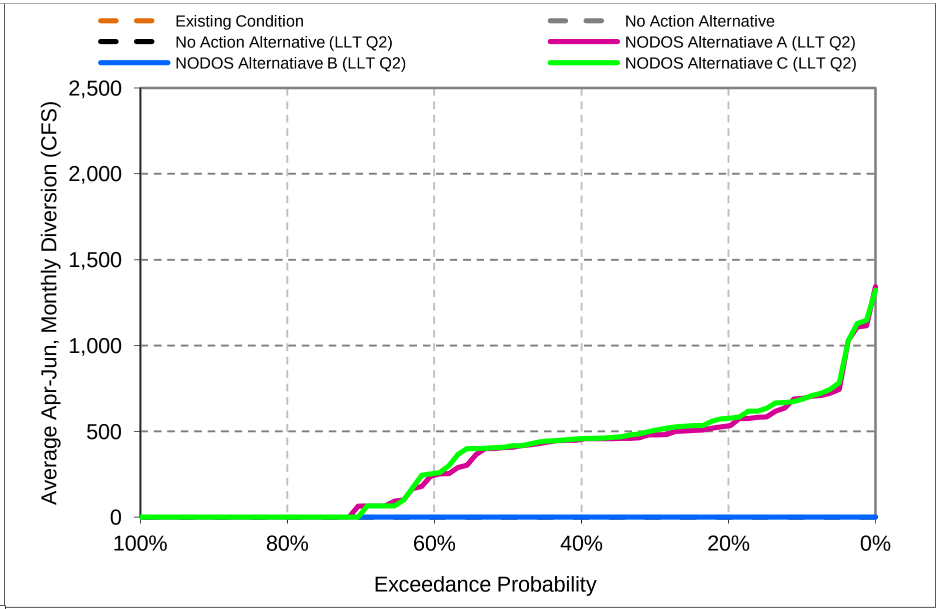


Figure 25B-38-6.
Delevan Intake and Pipeline,
Average Jan-Mar, Monthly Diversion (CFS)
LLT Sensitivity





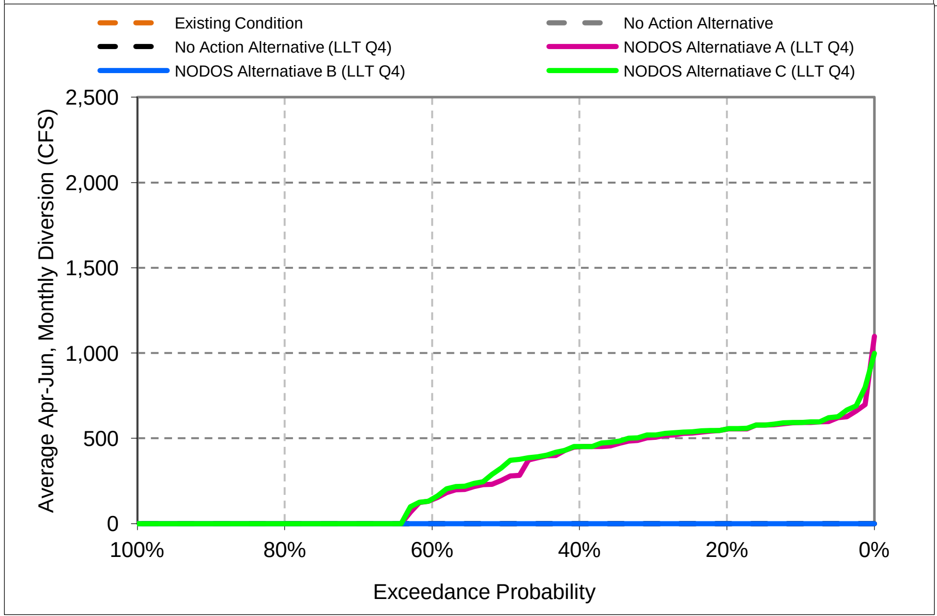
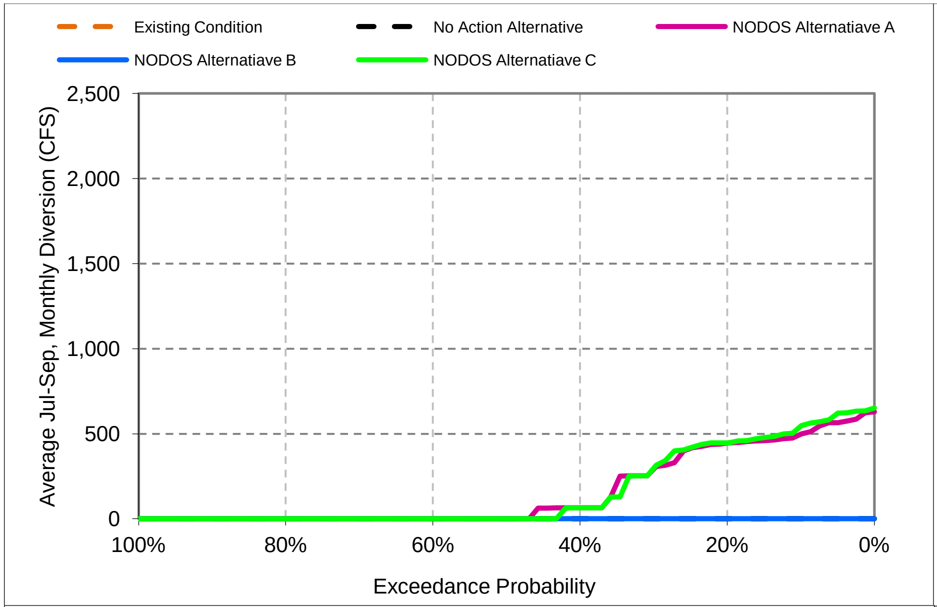
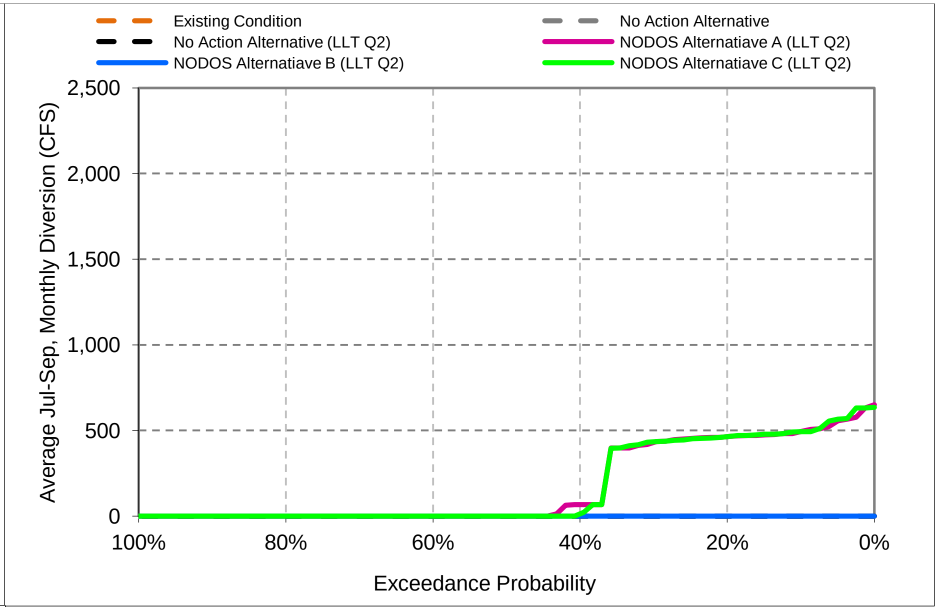


Figure 25B-38-7.
Delevan Intake and Pipeline,
Average Apr-Jun, Monthly Diversion (CFS)
LLT Sensitivity





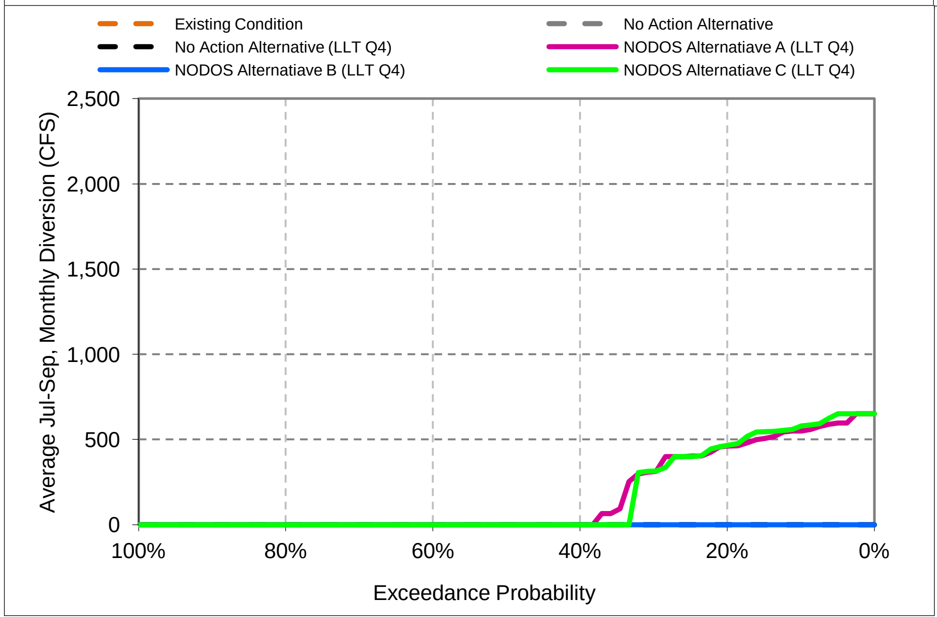


Figure 25B-38-8.
Delevan Intake and Pipeline,
Average Jul-Sep, Monthly Diversion (CFS)
LLT Sensitivity

Table 25B-39-1.
Funks Reservoir to Deleven Pipeline
Monthly Flow (CFS)
ELT and LLT trend

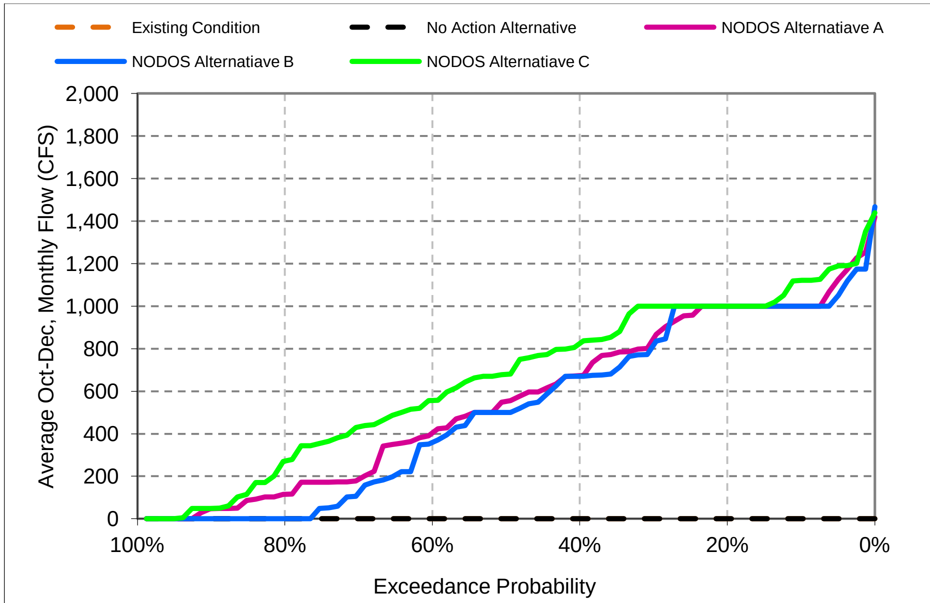
Long Term Average[1]

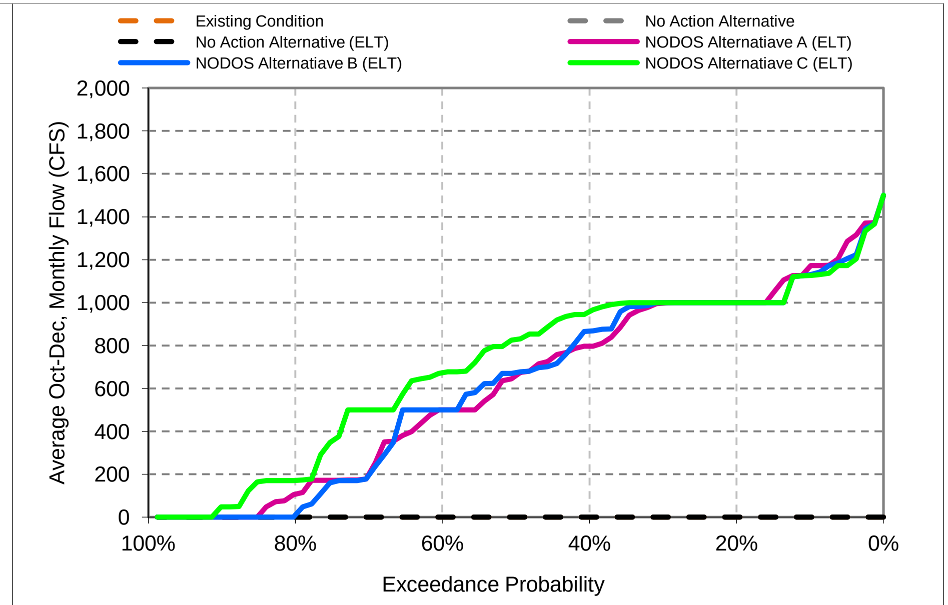
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	561	+561	+621	+650	43	+43	+59	+105	311	+311	+275	+378	885	+885	+952	+1,024
NODOS Alternative B	517	+517	+619	+599	35	+35	+56	+85	568	+568	+567	+702	914	+914	+947	+994
NODOS Alternative C	662	+662	+705	+738	60	+60	+80	+117	327	+327	+303	+399	948	+948	+1,036	+1,115

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,058	+1,058	+1,142	+1,159	168	+168	+231	+400	892	+892	+874	+1,109	1,383	+1,383	+1,400	+1,493
NODOS Alternative B	1,047	+1,047	+1,120	+1,102	138	+138	+217	+330	1,233	+1,233	+1,244	+1,254	1,423	+1,423	+1,451	+1,498
NODOS Alternative C	1,100	+1,100	+1,114	+1,147	236	+236	+314	+446	1,003	+1,003	+922	+1,091	1,449	+1,449	+1,496	+1,500
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	735	+735	+855	+877	0	+0	+0	+10	335	+335	+211	+385	1,017	+1,017	+1,097	+1,158
NODOS Alternative B	704	+704	+872	+827	0	+0	+0	+0	710	+710	+712	+895	1,129	+1,129	+1,168	+1,239
NODOS Alternative C	867	+867	+955	+980	0	+0	+0	+10	283	+283	+276	+479	1,110	+1,110	+1,196	+1,328
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	358	+358	+412	+507	0	+0	+0	+0	5	+5	+0	+0	773	+773	+904	+948
NODOS Alternative B	291	+291	+440	+425	0	+0	+0	+0	256	+256	+264	+536	791	+791	+861	+933
NODOS Alternative C	529	+529	+625	+623	0	+0	+0	+0	3	+3	+0	+11	815	+815	+954	+1,000
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	68	+68	+47	+33	0	+0	+0	+0	0	+0	+0	+0	367	+367	+413	+502
NODOS Alternative B	2	+2	+19	+16	0	+0	+0	+0	65	+65	+41	+125	317	+317	+314	+313
NODOS Alternative C	131	+131	+105	+181	0	+0	+0	+0	0	+0	+0	+0	420	+420	+501	+638

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





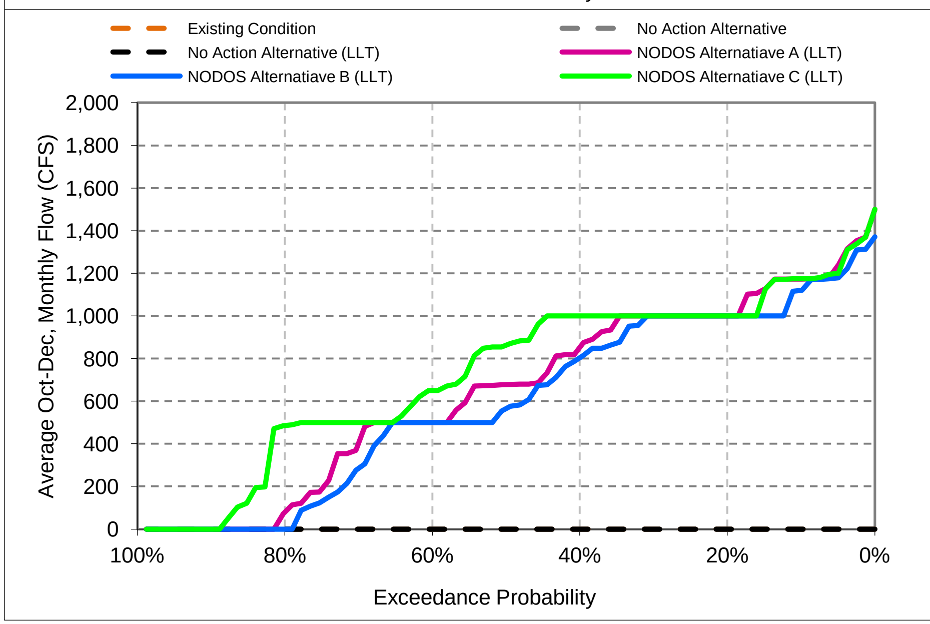


Figure 25B-39-1.
Funks Reservoir to Deleven Pipeline,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend

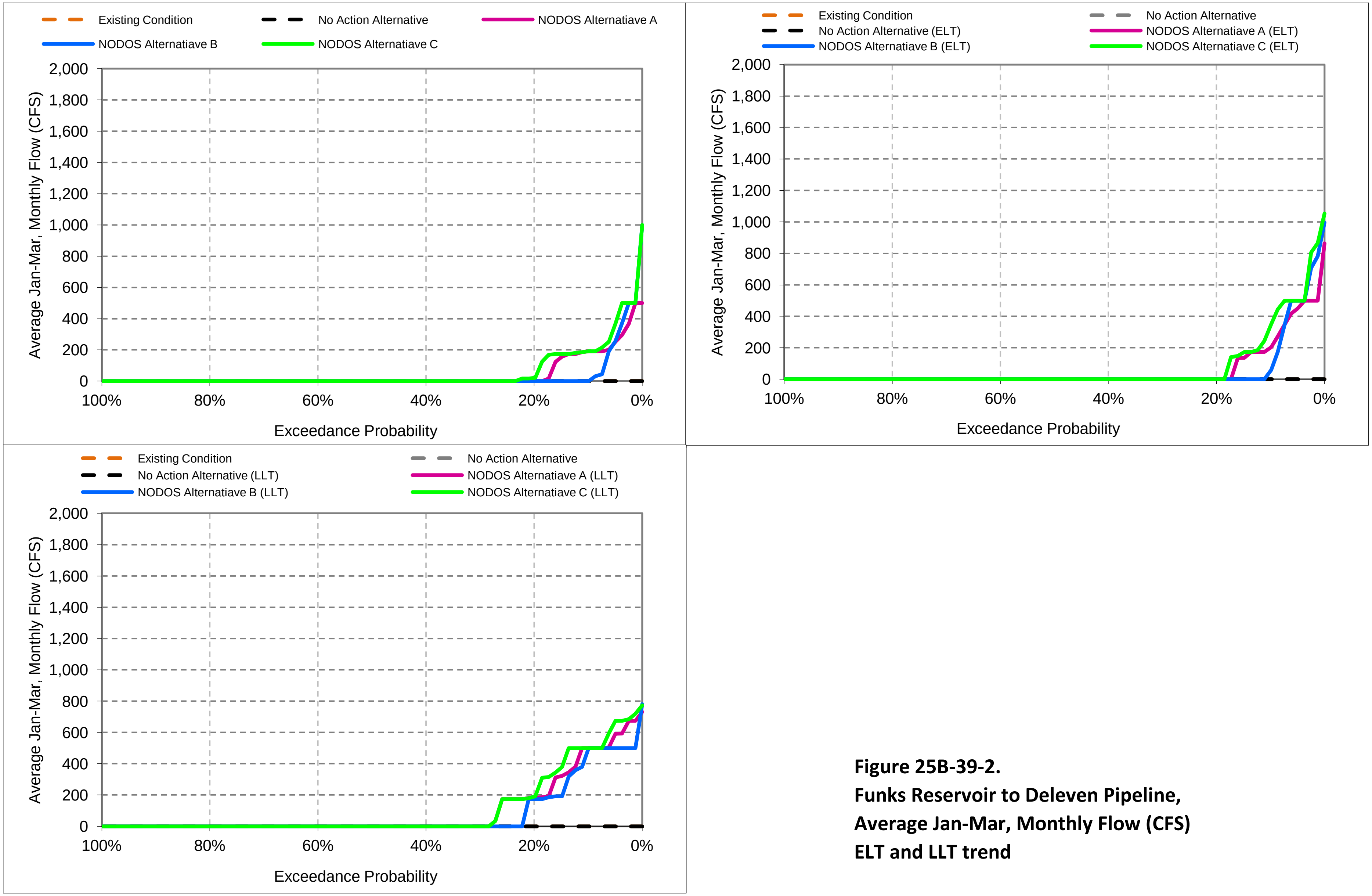
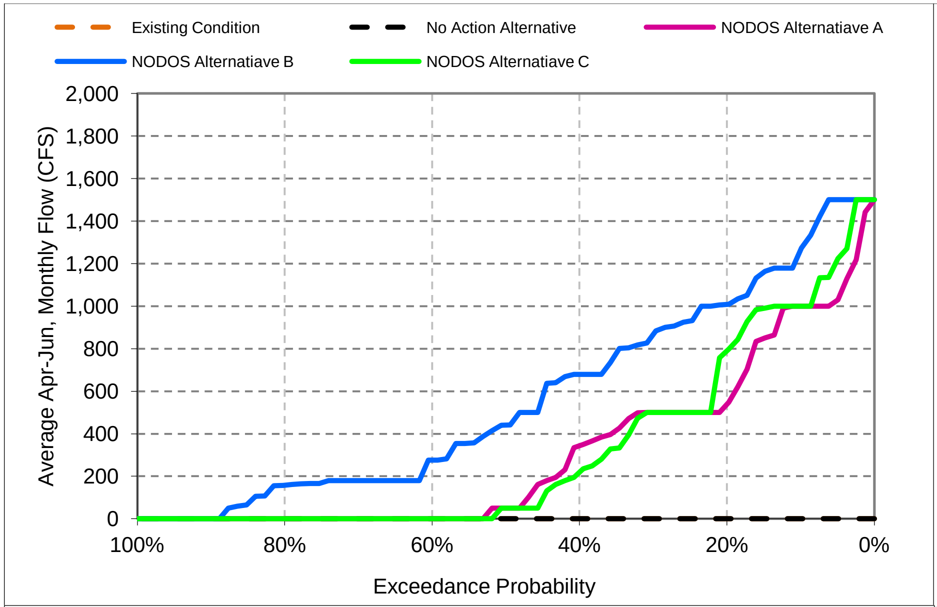
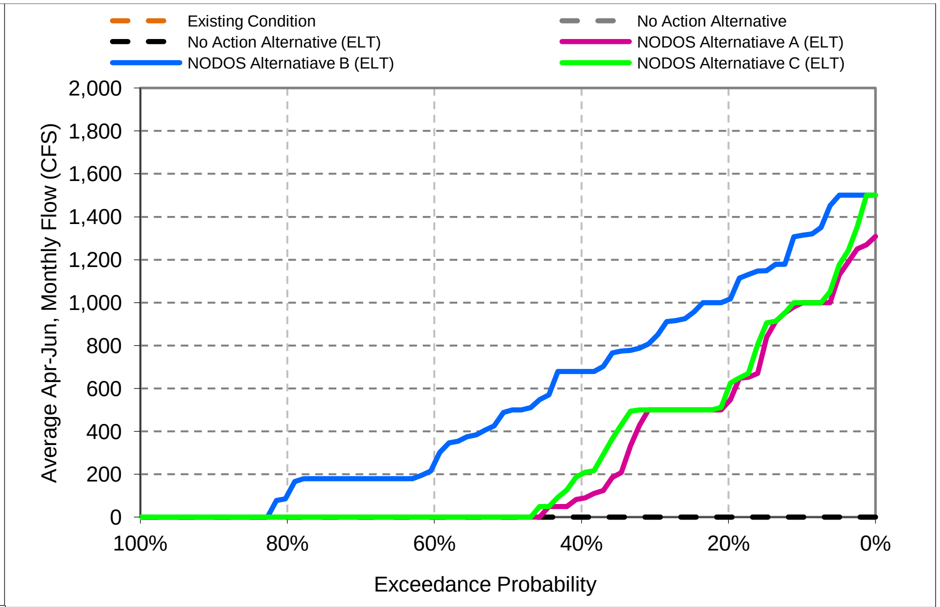


Figure 25B-39-2.
Funks Reservoir to Deleven Pipeline,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend





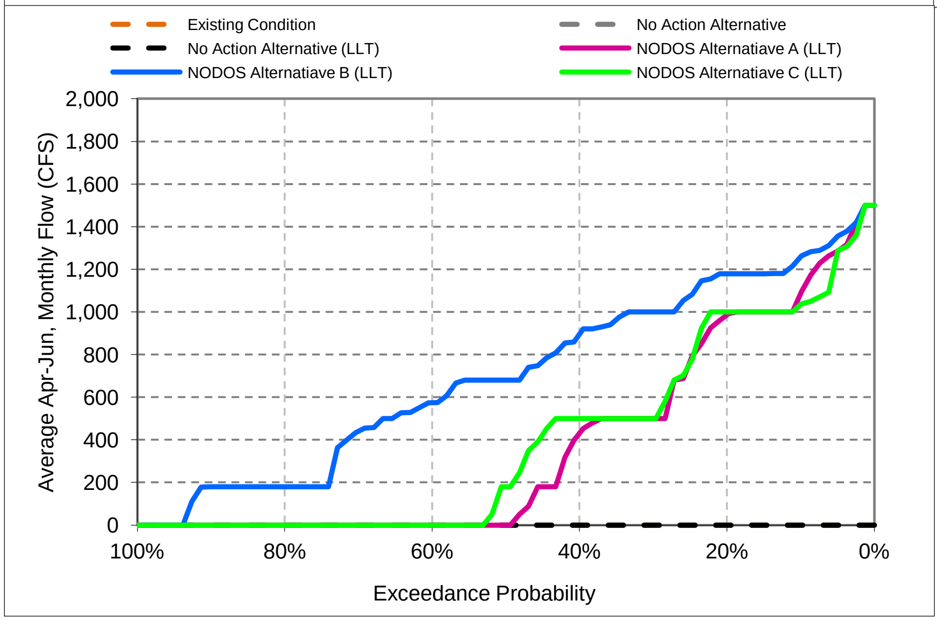
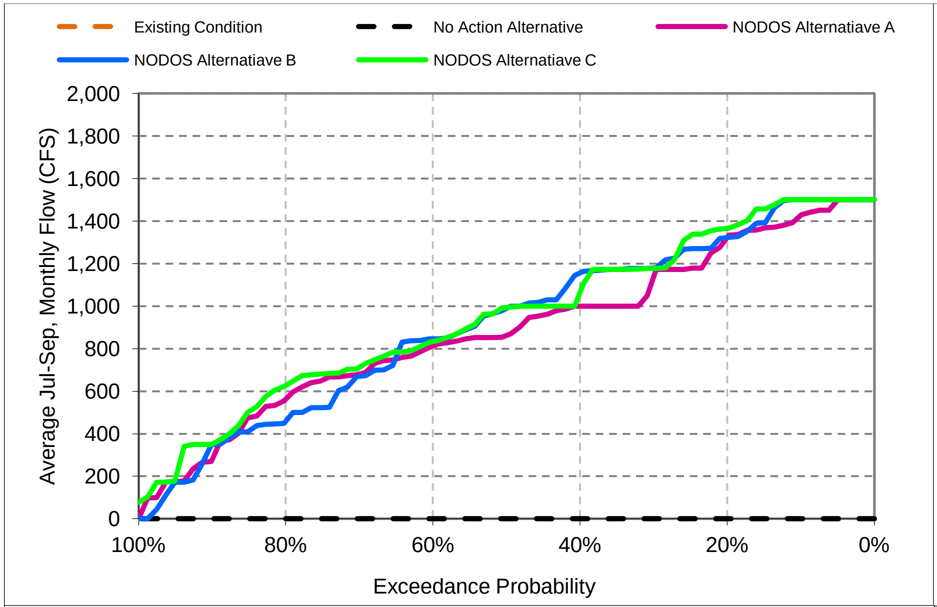
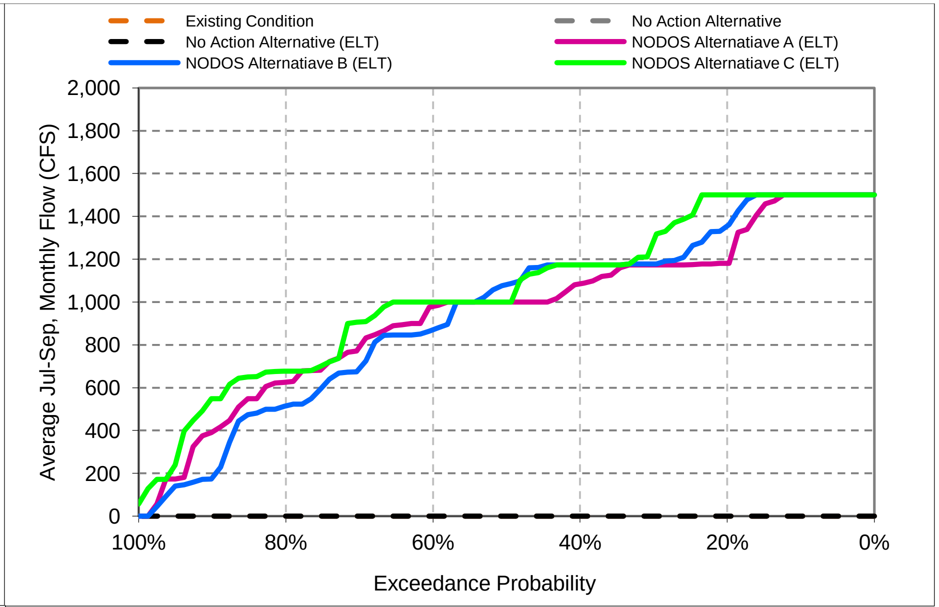


Figure 25B-39-3.
Funks Reservoir to Deleven Pipeline,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





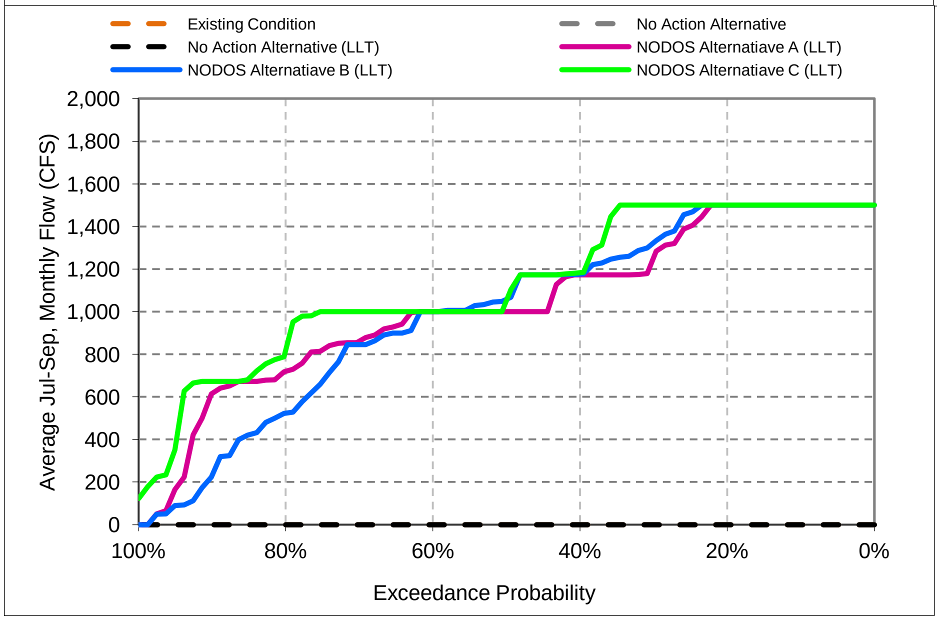


Figure 25B-39-4.
Funks Reservoir to Deleven Pipeline,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-39-2.
Funks Reservoir to Deleven Pipeline
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	561	+561	+561	+683	43	+43	+125	+60	311	+311	+497	+274	885	+885	+999	+1,038
NODOS Alternative B	517	+517	+465	+735	35	+35	+69	+67	568	+568	+739	+513	914	+914	+980	+1,050
NODOS Alternative C	662	+662	+656	+780	60	+60	+134	+78	327	+327	+512	+310	948	+948	+1,117	+1,106

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,058	+1,058	+1,152	+1,135	168	+168	+451	+233	892	+892	+1,091	+735	1,383	+1,383	+1,471	+1,487
NODOS Alternative B	1,047	+1,047	+1,124	+1,184	138	+138	+268	+262	1,233	+1,233	+1,229	+1,170	1,423	+1,423	+1,494	+1,500
NODOS Alternative C	1,100	+1,100	+1,175	+1,211	236	+236	+486	+303	1,003	+1,003	+1,132	+825	1,449	+1,449	+1,500	+1,500
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	735	+735	+762	+953	0	+0	+40	+0	335	+335	+569	+350	1,017	+1,017	+1,197	+1,203
NODOS Alternative B	704	+704	+590	+980	0	+0	+0	+0	710	+710	+877	+566	1,129	+1,129	+1,304	+1,293
NODOS Alternative C	867	+867	+844	+1,000	0	+0	+40	+0	283	+283	+610	+403	1,110	+1,110	+1,403	+1,328
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	358	+358	+292	+555	0	+0	+0	+0	5	+5	+321	+0	773	+773	+936	+952
NODOS Alternative B	291	+291	+111	+642	0	+0	+0	+0	256	+256	+641	+237	791	+791	+933	+967
NODOS Alternative C	529	+529	+513	+717	0	+0	+0	+0	3	+3	+302	+0	815	+815	+997	+996
Lower (100%-75% exceedence)																
Change in No Action Alternative:	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0	0	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	68	+68	+9	+67	0	+0	+0	+0	0	+0	+0	+0	367	+367	+397	+514
NODOS Alternative B	2	+2	+0	+112	0	+0	+0	+0	65	+65	+212	+67	317	+317	+203	+448
NODOS Alternative C	131	+131	+67	+169	0	+0	+0	+0	0	+0	+0	+0	420	+420	+576	+606

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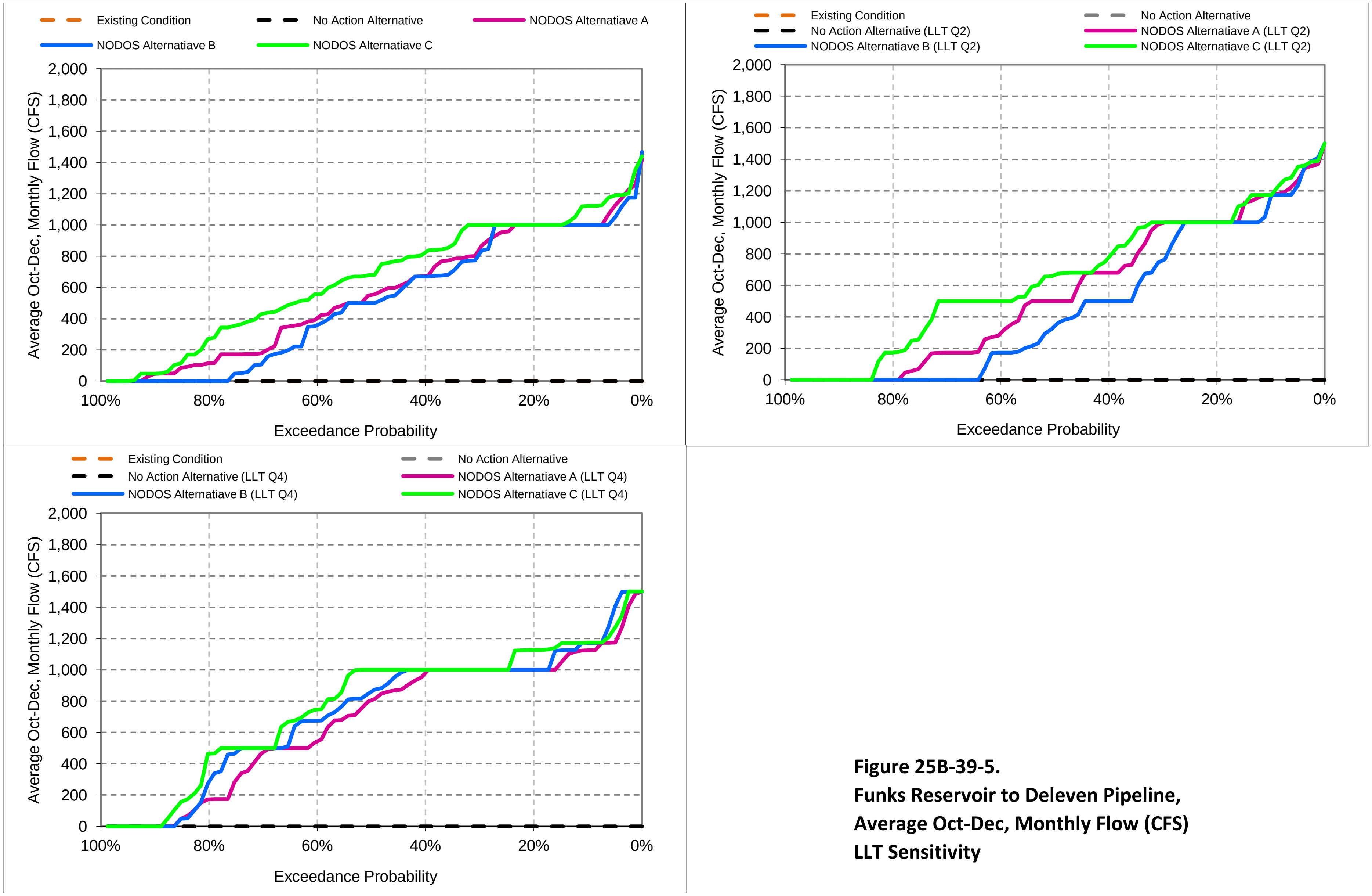
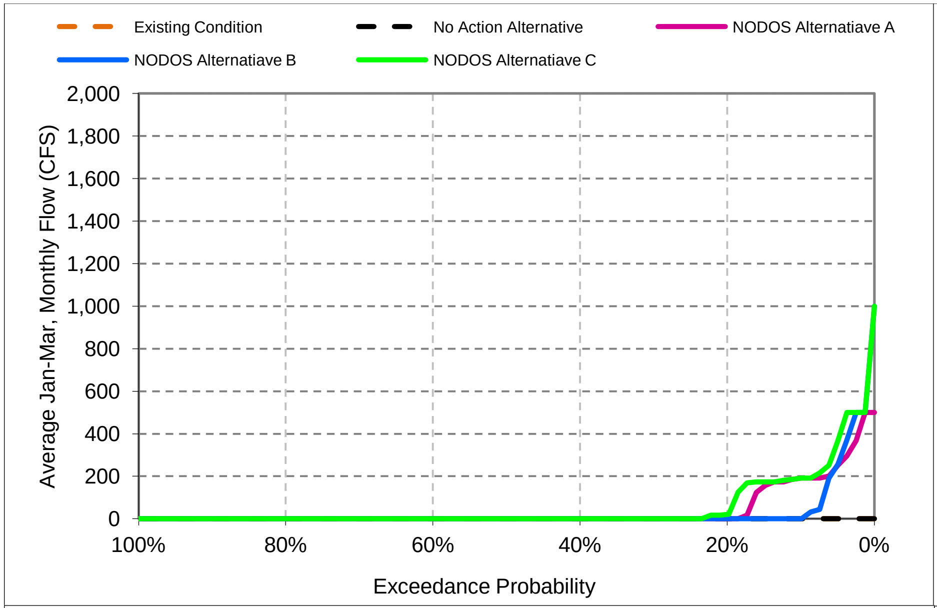
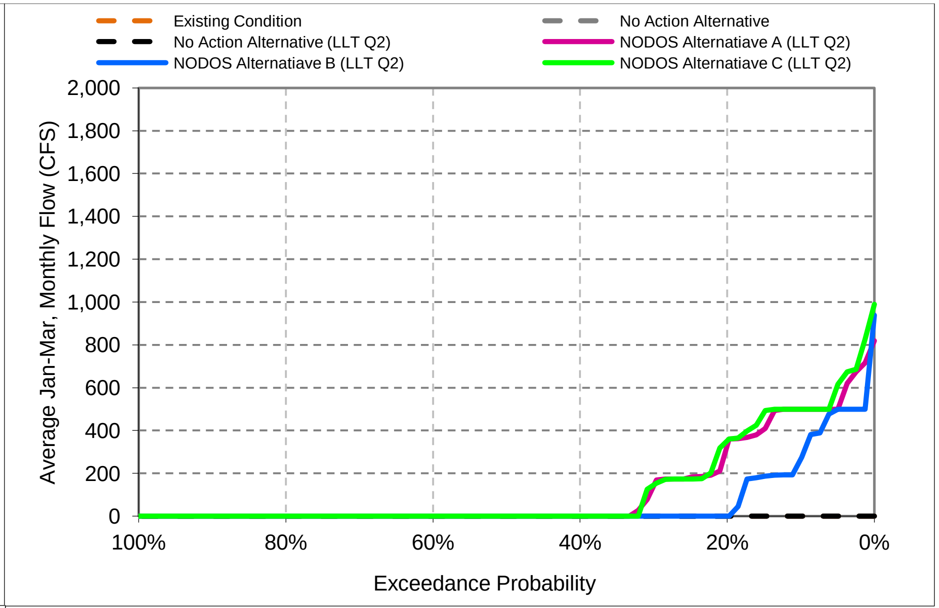


Figure 25B-39-5.
Funks Reservoir to Deleven Pipeline,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





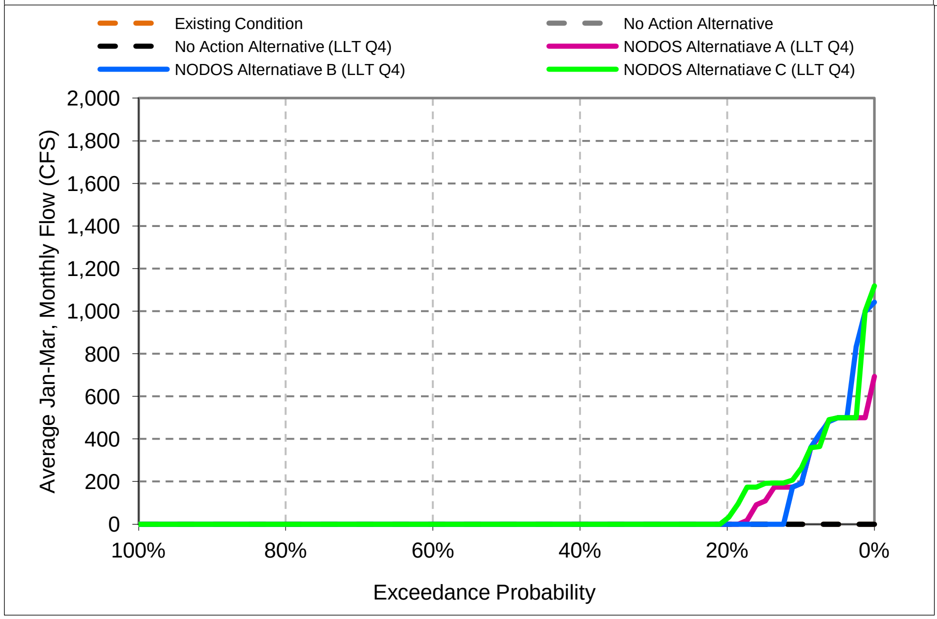
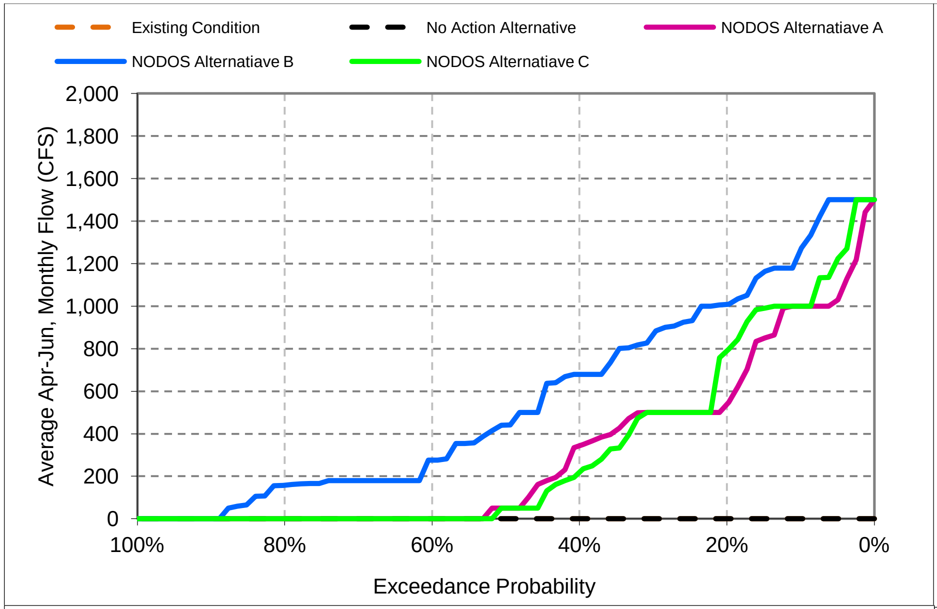
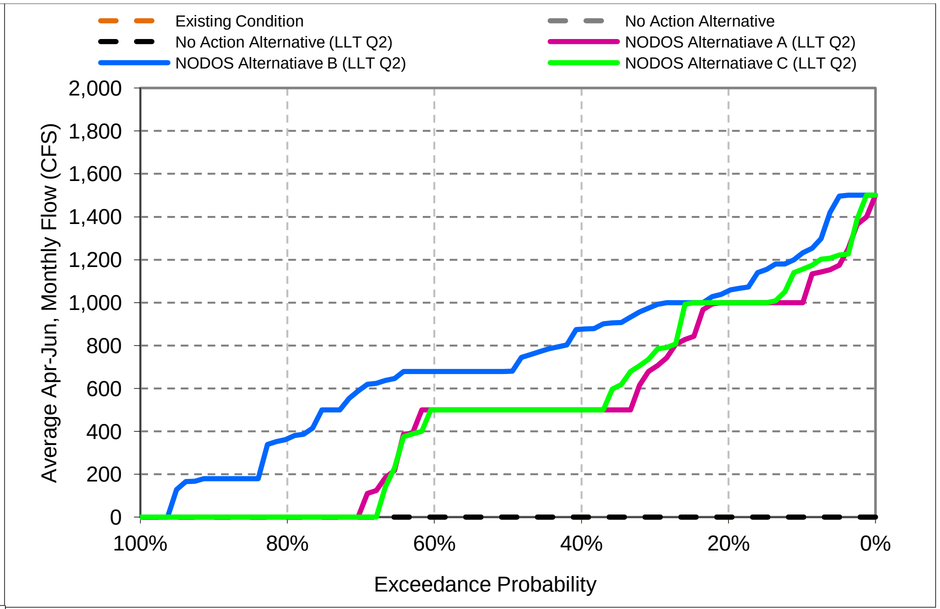


Figure 25B-39-6.
Funks Reservoir to Deleven Pipeline,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity





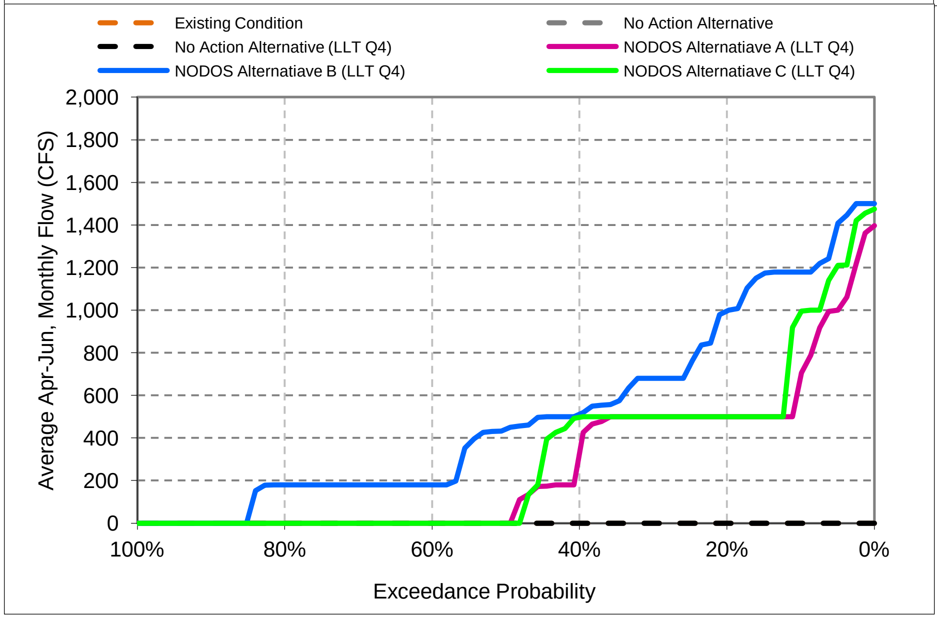
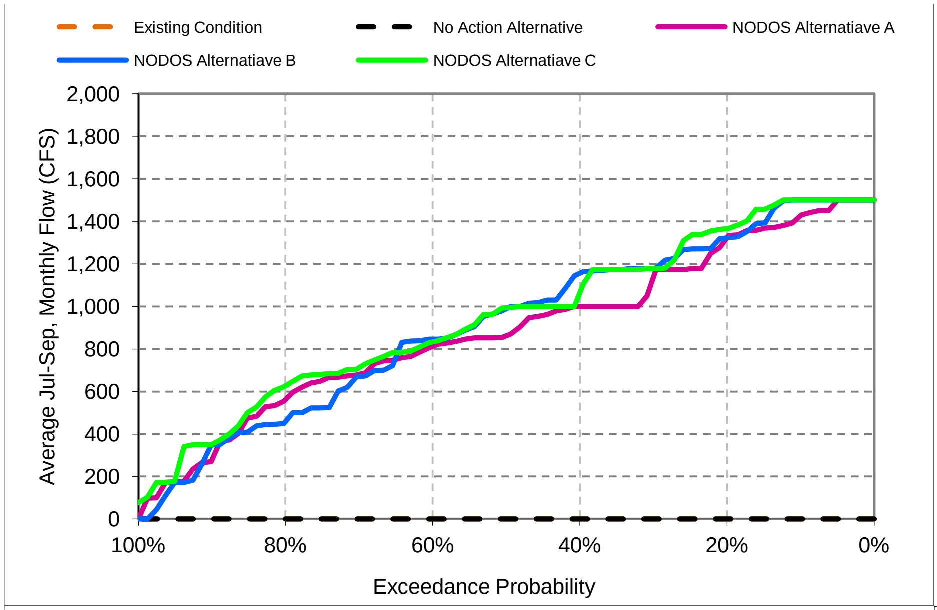
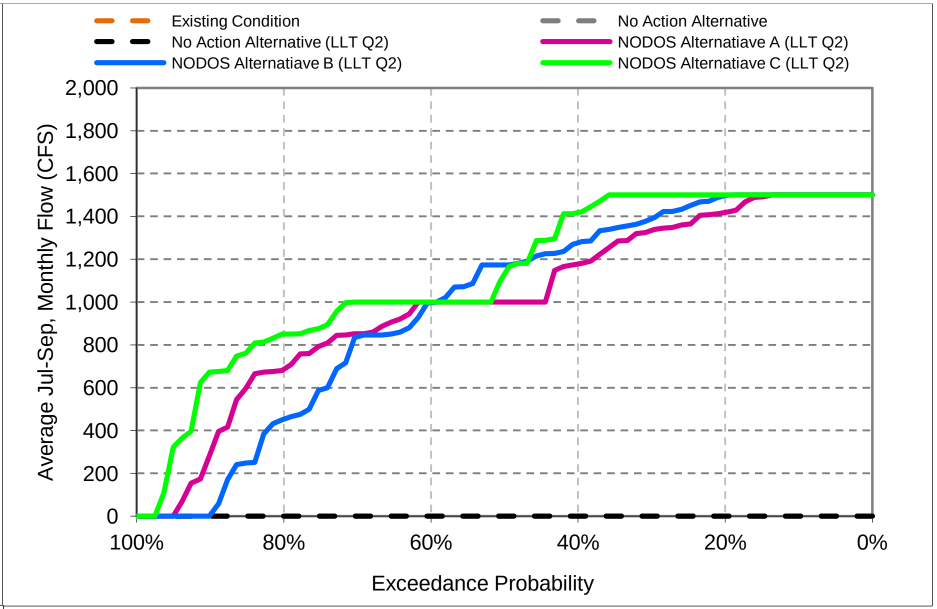


Figure 25B-39-7.
Funks Reservoir to Deleven Pipeline,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.





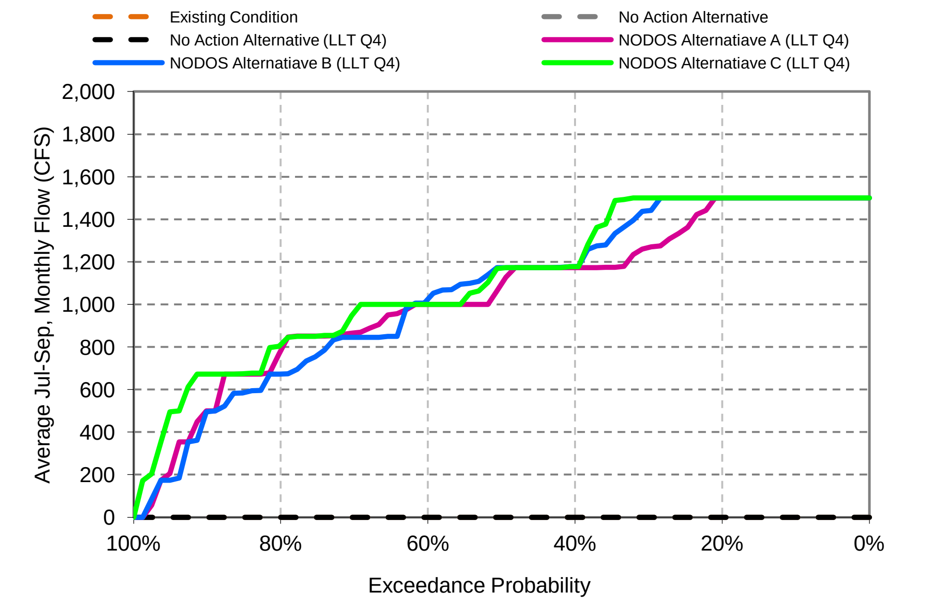


Figure 25B-39-8.
Funks Reservoir to Deleven Pipeline,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-40-1.
Sacramento River below Delevan Intake and Pipeline
Monthly Flow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	9,913	--	+250	+161	22,234	--	+519	+764	9,303	--	-182	-81	8,038	--	-20	+243
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	10,292	+378	+204	+81	20,614	-1,620	-1,687	-1,626	9,359	+56	+90	+44	9,073	+1,035	+1,158	+1,304
NODOS Alternative B	10,414	+500	+323	+242	20,751	-1,483	-1,482	-1,458	9,149	-154	-163	-175	9,038	+1,001	+1,099	+1,180
NODOS Alternative C	10,401	+488	+242	+181	20,363	-1,871	-1,881	-1,889	9,300	-3	+27	-2	9,250	+1,213	+1,373	+1,526

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	17,644	--	+1,060	+109	44,003	--	+1,633	+2,433	15,943	--	-554	-842	10,153	--	+16	+559
Change in Alternative from No Action Alternative:																
NODOS Alternative A	17,532	-113	+26	-286	42,442	-1,561	-1,406	-1,366	15,773	-170	-118	-293	10,943	+790	+1,255	+1,189
NODOS Alternative B	17,821	+176	+335	+170	42,148	-1,855	-1,555	-1,623	15,060	-883	-1,039	-1,077	11,021	+868	+1,298	+1,154
NODOS Alternative C	17,556	-88	+126	-236	42,071	-1,932	-1,743	-1,747	15,559	-383	-357	-487	11,163	+1,010	+1,470	+1,347
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	9,507	--	-8	+179	23,016	--	+592	+681	8,374	--	-145	+39	8,555	--	+65	+426
Change in Alternative from No Action Alternative:																
NODOS Alternative A	9,974	+467	+151	+111	21,052	-1,964	-2,043	-1,966	8,377	+3	+128	+122	9,577	+1,021	+1,181	+1,432
NODOS Alternative B	10,197	+690	+337	+397	21,017	-1,999	-2,005	-1,896	8,233	-141	-142	+37	9,589	+1,033	+1,180	+1,309
NODOS Alternative C	10,241	+735	+206	+253	20,651	-2,364	-2,419	-2,518	8,388	+13	+56	+148	9,787	+1,232	+1,380	+1,643
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	7,056	--	-21	+258	13,465	--	-25	-63	6,797	--	+68	+398	7,375	--	+3	+328
Change in Alternative from No Action Alternative:																
NODOS Alternative A	7,768	+713	+358	+425	11,162	-2,304	-2,510	-2,383	7,003	+206	+126	+188	8,383	+1,009	+1,037	+1,459
NODOS Alternative B	7,807	+751	+415	+383	11,703	-1,762	-1,745	-1,640	6,977	+181	+200	+231	8,469	+1,095	+1,001	+1,379
NODOS Alternative C	7,848	+792	+394	+493	10,939	-2,527	-2,530	-2,523	7,000	+203	+174	+187	8,633	+1,258	+1,385	+1,865
Lower (100%-75% exceedence)																
Change in No Action Alternative:	5,061	--	-73	+102	8,071	--	-145	-37	5,934	--	-84	+110	6,061	--	-159	-330
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,531	+470	+289	+91	7,370	-701	-844	-839	6,125	+191	+227	+169	7,378	+1,318	+1,156	+1,149
NODOS Alternative B	5,461	+400	+206	+23	7,716	-355	-659	-701	6,179	+245	+346	+139	7,073	+1,012	+914	+892
NODOS Alternative C	5,603	+542	+247	+236	7,357	-714	-892	-830	6,101	+167	+244	+161	7,415	+1,354	+1,257	+1,271

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2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
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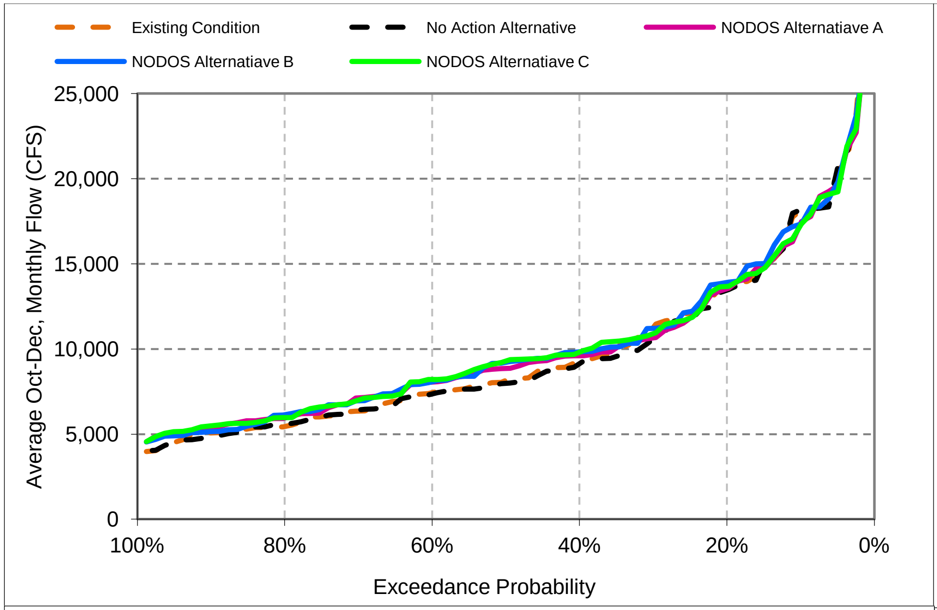
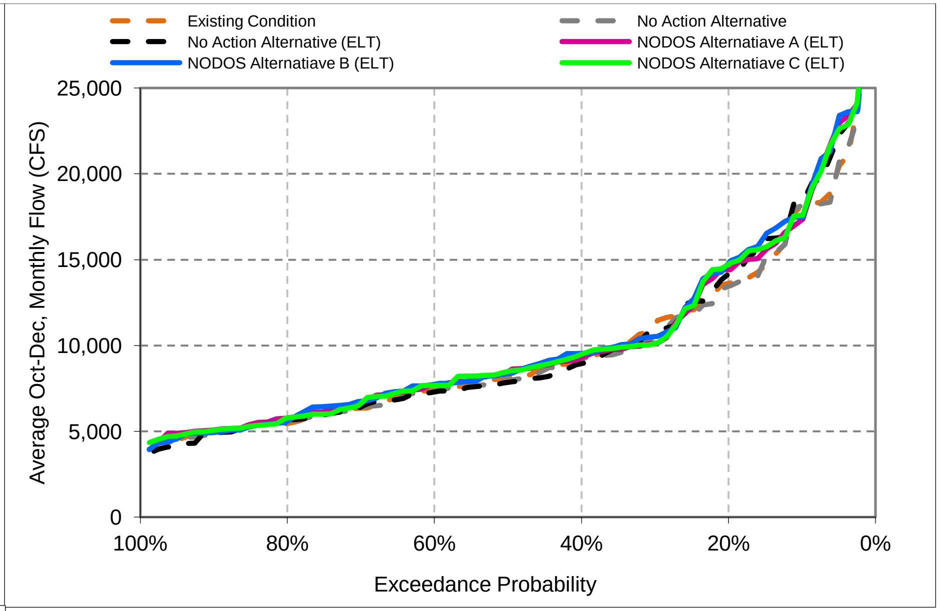




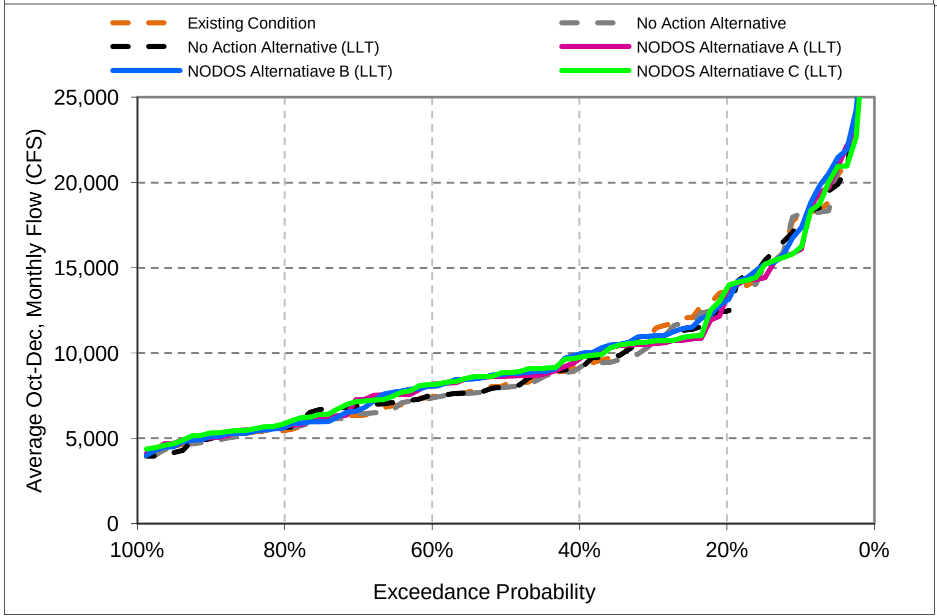
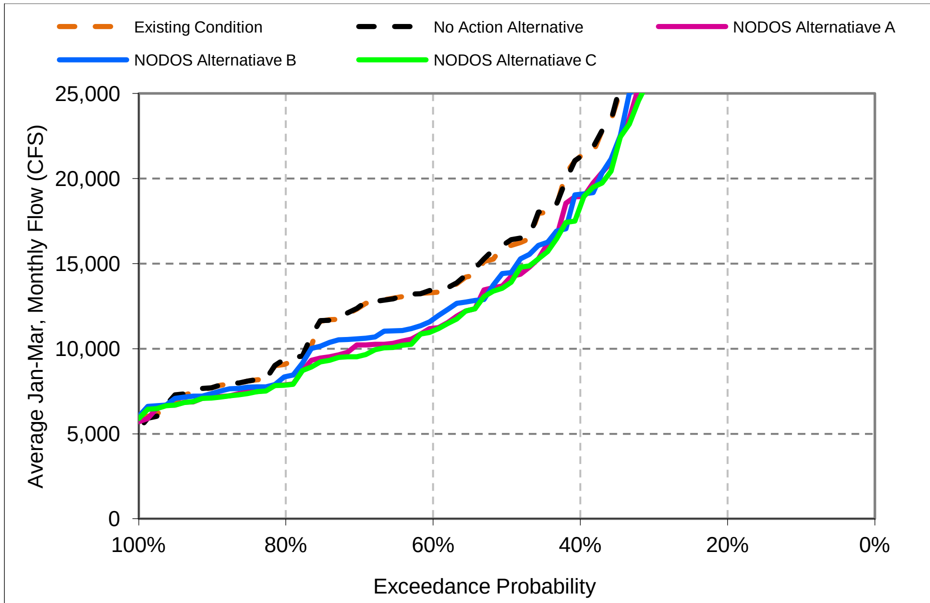
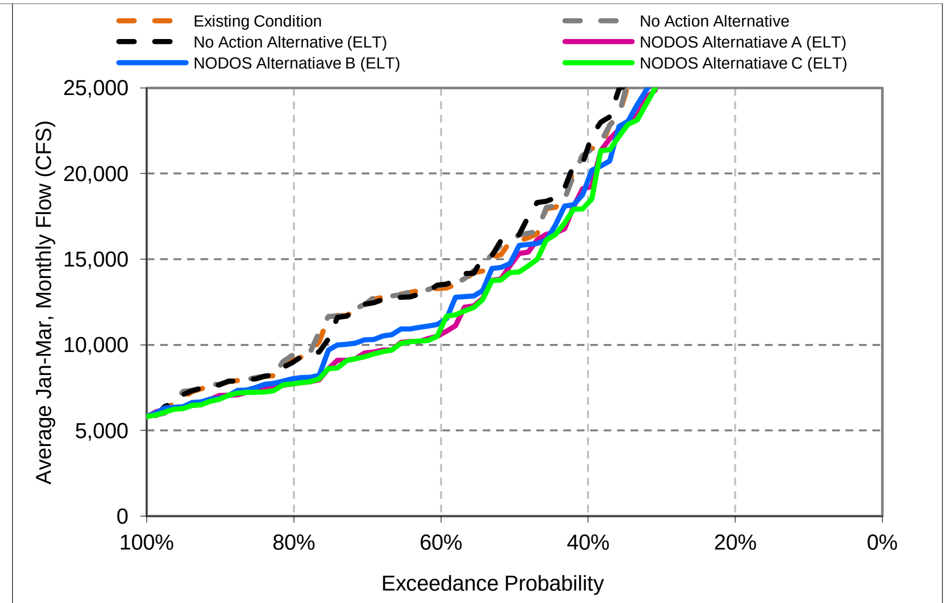


Figure 25B-40-1.
Sacramento River below Delevan Intake and Pipeline,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend





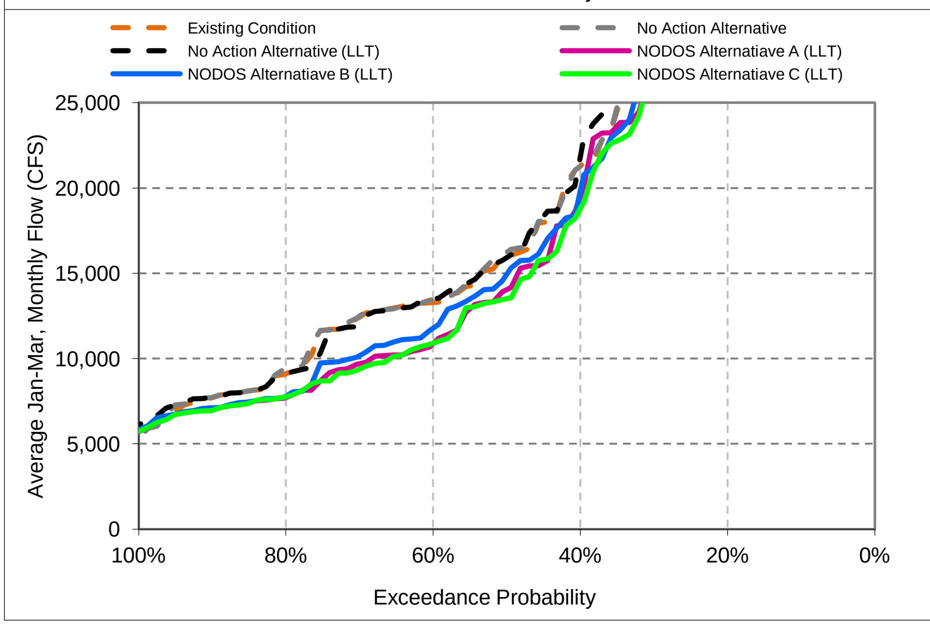
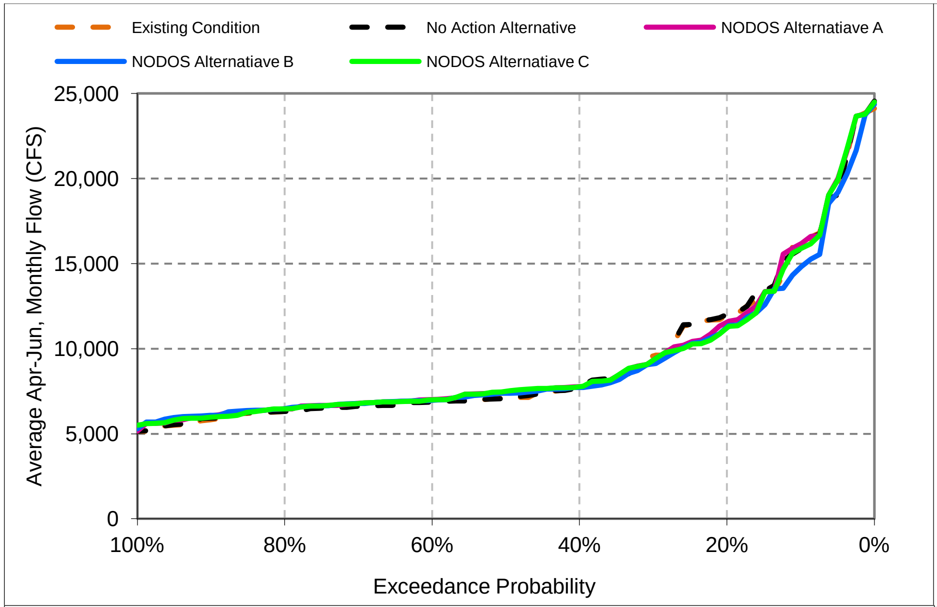
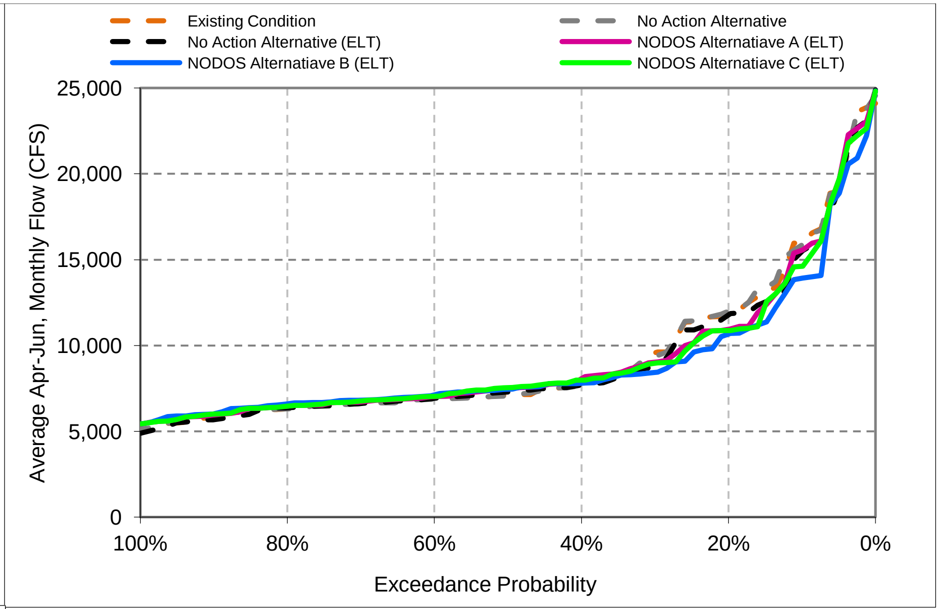


Figure 25B-40-2.
Sacramento River below Delevan Intake and Pipeline,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend





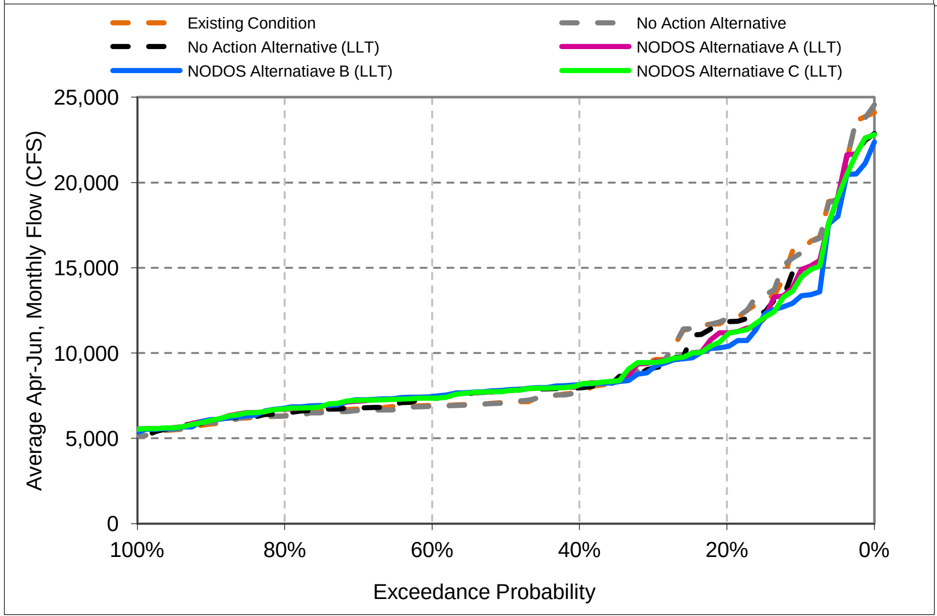
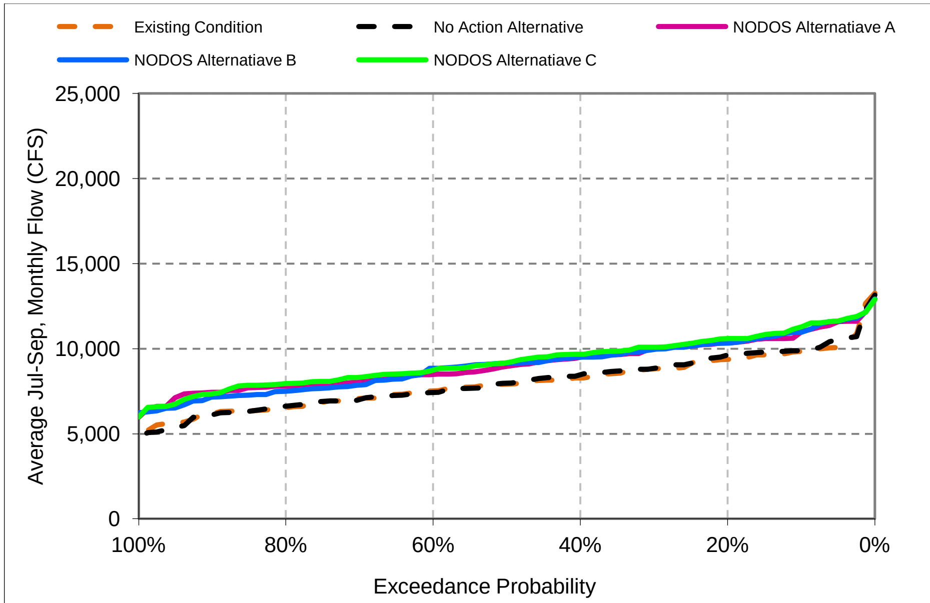
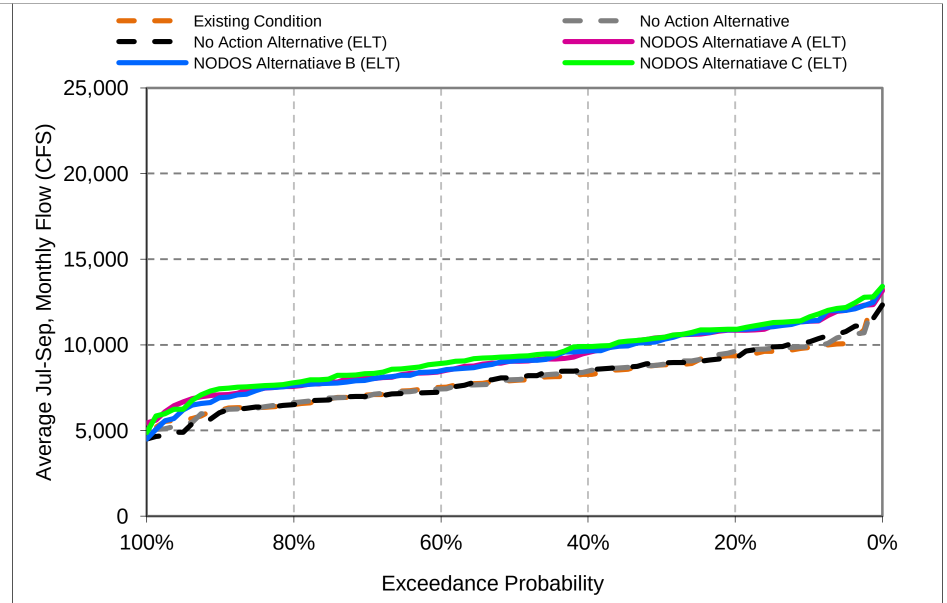


Figure 25B-40-3.
Sacramento River below Delevan Intake and Pipeline,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





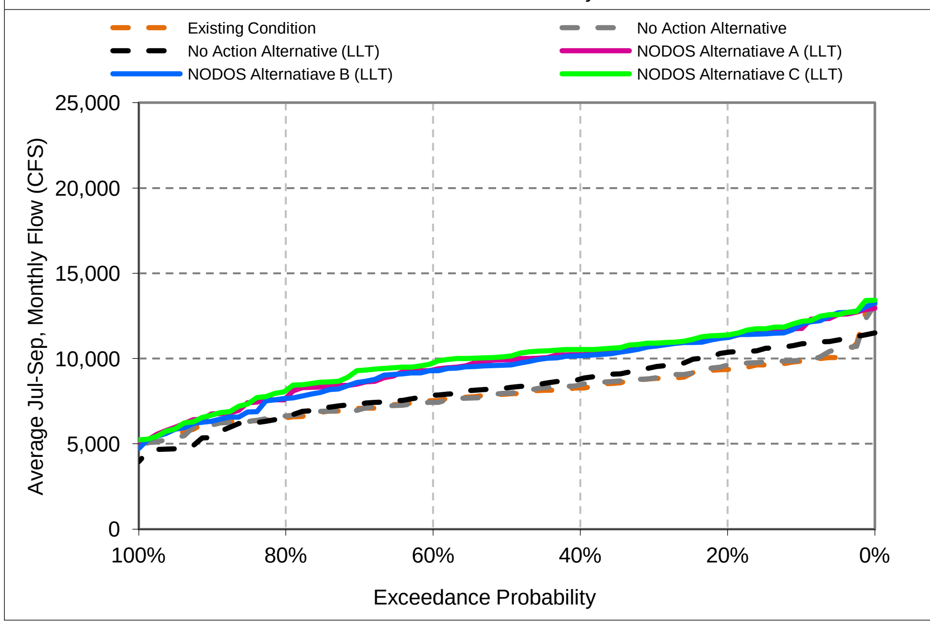


Figure 25B-40-4.
Sacramento River below Delevan Intake and Pipeline,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-40-2.
Sacramento River below Delevan Intake and Pipeline
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	9,913	--	-1,421	+1,655	22,234	--	-2,777	+4,272	9,303	--	-733	+1,396	8,038	--	-750	+1,071
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	10,292	+378	+42	+133	20,614	-1,620	-1,654	-1,643	9,359	+56	+215	-21	9,073	+1,035	+1,158	+1,347
NODOS Alternative B	10,414	+500	+103	+343	20,751	-1,483	-1,285	-1,456	9,149	-154	-27	-323	9,038	+1,001	+995	+1,211
NODOS Alternative C	10,401	+488	+110	+250	20,363	-1,871	-1,880	-1,847	9,300	-3	+135	-100	9,250	+1,213	+1,325	+1,497

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	17,644	--	-3,123	+3,614	44,003	--	-5,029	+8,678	15,943	--	-2,646	+2,702	10,153	--	+73	+770
Change in Alternative from No Action Alternative:																
NODOS Alternative A	17,532	-113	-455	-444	42,442	-1,561	-1,527	-1,289	15,773	-170	+3	-287	10,943	+790	+1,119	+1,354
NODOS Alternative B	17,821	+176	-282	-176	42,148	-1,855	-1,637	-1,399	15,060	-883	-928	-1,177	11,021	+868	+1,133	+1,233
NODOS Alternative C	17,556	-88	-440	-374	42,071	-1,932	-2,108	-1,576	15,559	-383	-247	-559	11,163	+1,010	+1,296	+1,480
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	9,507	--	-1,114	+1,095	23,016	--	-4,234	+5,816	8,374	--	-149	+1,592	8,555	--	-630	+1,163
Change in Alternative from No Action Alternative:																
NODOS Alternative A	9,974	+467	+118	+143	21,052	-1,964	-2,420	-1,777	8,377	+3	+333	-161	9,577	+1,021	+1,362	+1,291
NODOS Alternative B	10,197	+690	+217	+428	21,017	-1,999	-1,706	-1,787	8,233	-141	+212	-442	9,589	+1,033	+1,134	+1,221
NODOS Alternative C	10,241	+735	+249	+355	20,651	-2,364	-2,587	-2,096	8,388	+13	+267	-169	9,787	+1,232	+1,590	+1,541
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	7,056	--	-845	+917	13,465	--	-1,301	+1,837	6,797	--	+216	+802	7,375	--	-917	+1,133
Change in Alternative from No Action Alternative:																
NODOS Alternative A	7,768	+713	+312	+620	11,162	-2,304	-2,103	-2,275	7,003	+206	+255	+224	8,383	+1,009	+1,283	+1,427
NODOS Alternative B	7,807	+751	+307	+813	11,703	-1,762	-1,421	-1,747	6,977	+181	+353	+195	8,469	+1,095	+1,022	+1,249
NODOS Alternative C	7,848	+792	+340	+809	10,939	-2,527	-2,220	-2,518	7,000	+203	+275	+250	8,633	+1,258	+1,450	+1,494
Lower (100%-75% exceedence)																
Change in No Action Alternative:	5,061	--	-518	+898	8,071	--	-544	+713	5,934	--	-278	+470	6,061	--	-1,528	+1,226
Change in Alternative from No Action Alternative:																
NODOS Alternative A	5,531	+470	+220	+243	7,370	-701	-623	-1,265	6,125	+191	+276	+147	7,378	+1,318	+884	+1,316
NODOS Alternative B	5,461	+400	+191	+333	7,716	-355	-401	-921	6,179	+245	+286	+152	7,073	+1,012	+699	+1,142
NODOS Alternative C	5,603	+542	+321	+240	7,357	-714	-656	-1,242	6,101	+167	+258	+90	7,415	+1,354	+982	+1,473

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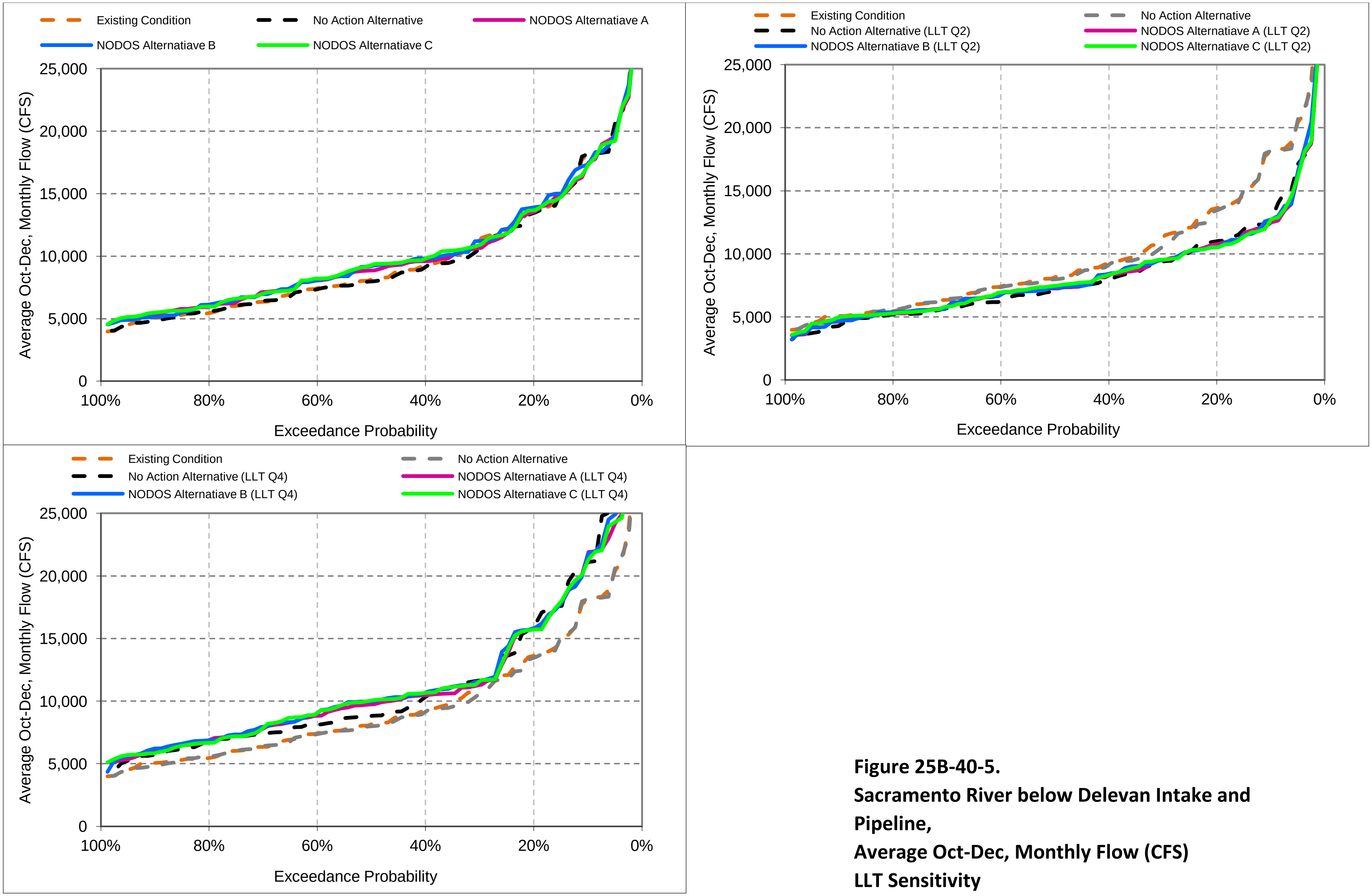
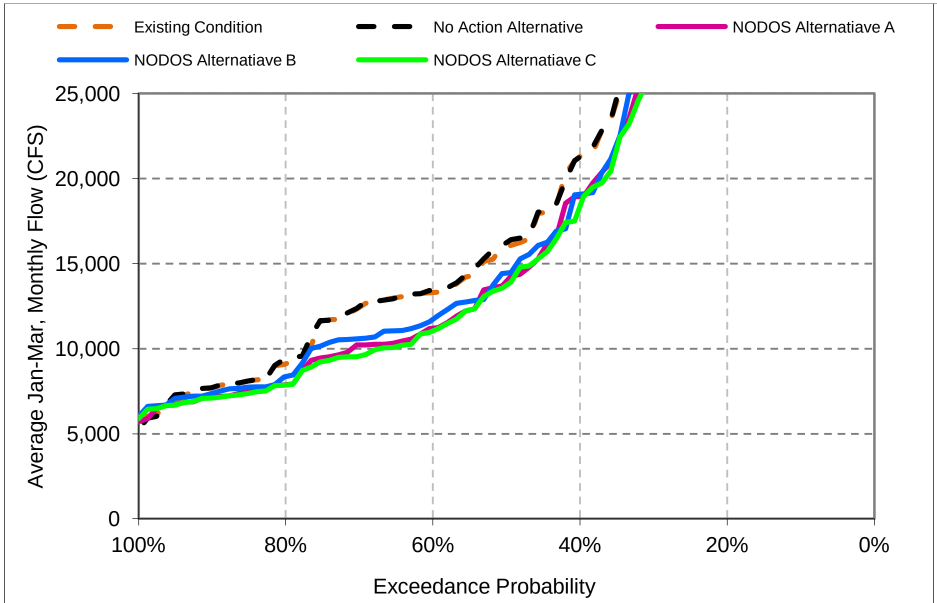
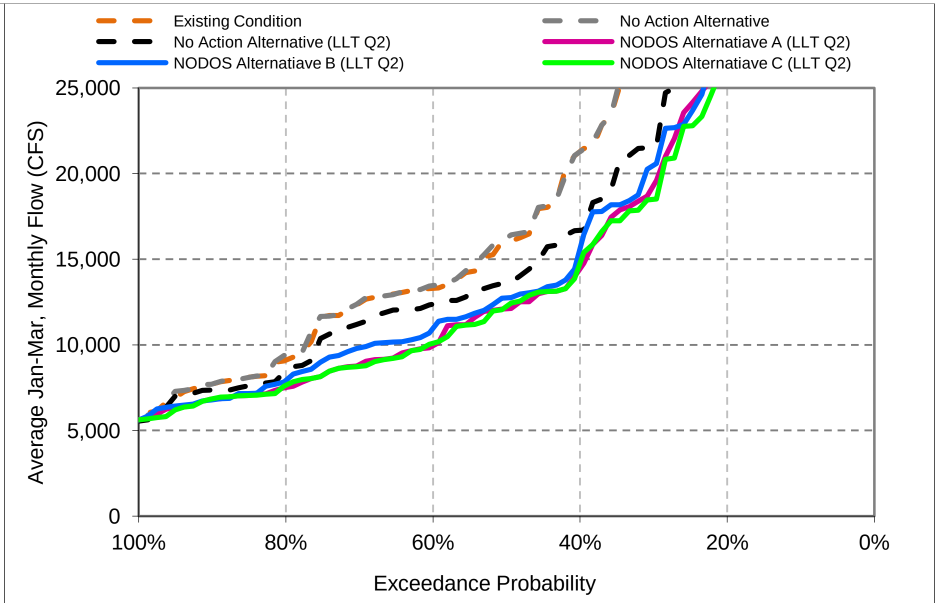


Figure 25B-40-5.
Sacramento River below Delevan Intake and Pipeline,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





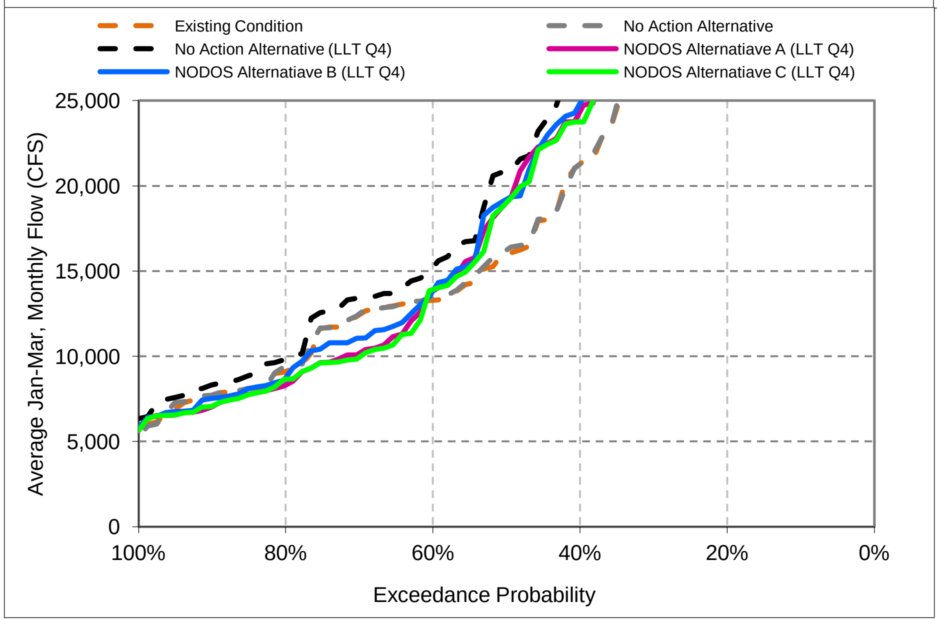
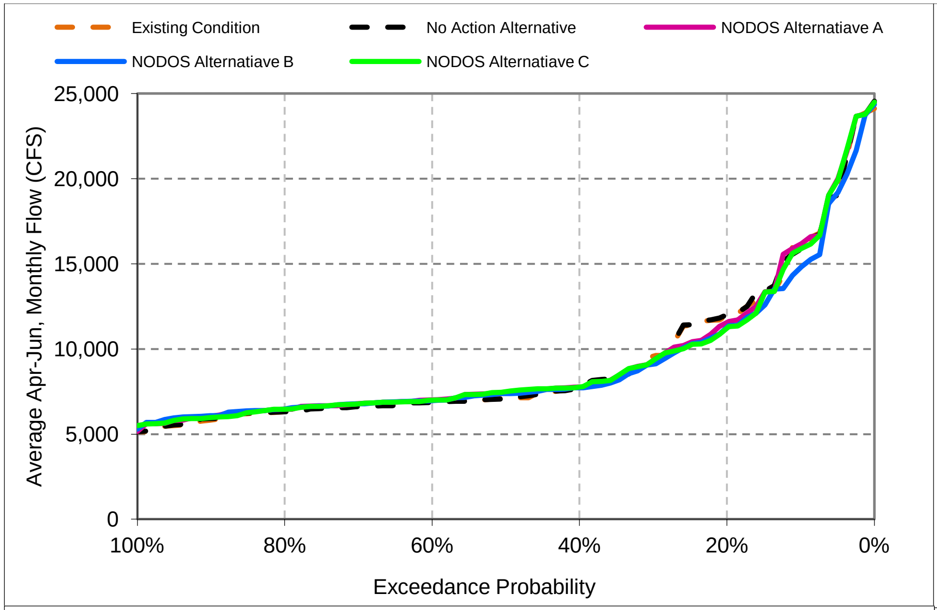
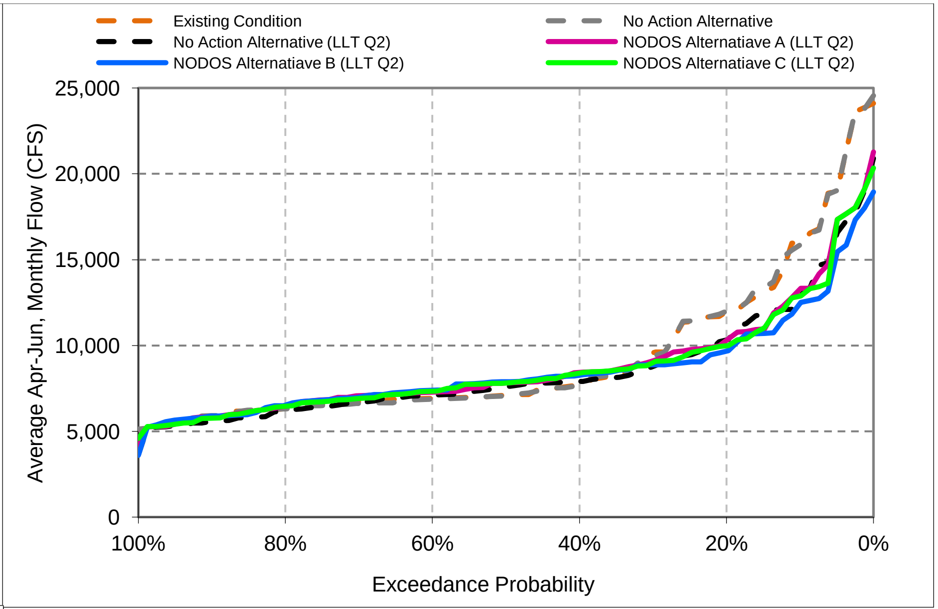


Figure 25B-40-6.
Sacramento River below Delevan Intake and Pipeline,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity





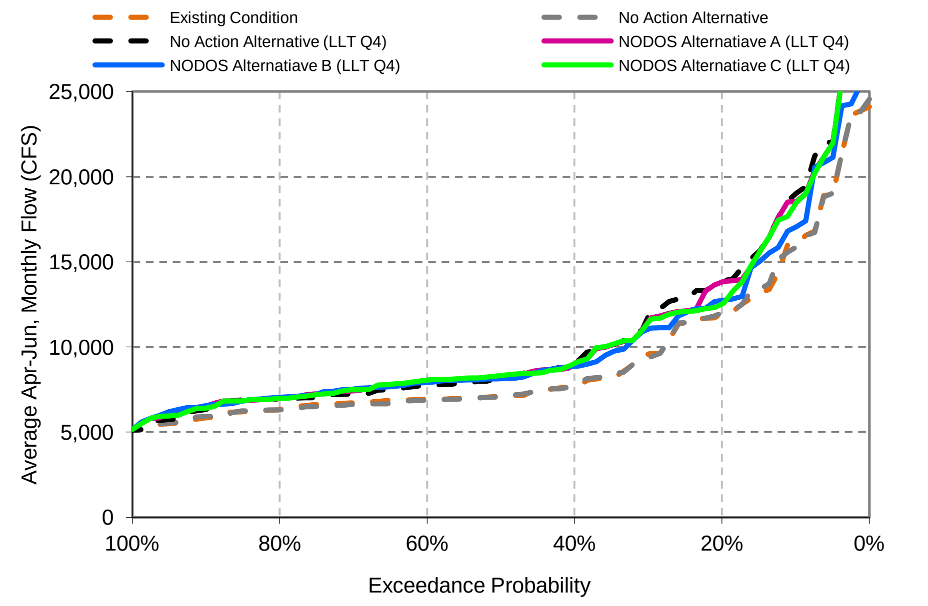


Figure 25B-40-7.
Sacramento River below Delevan Intake and Pipeline,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity

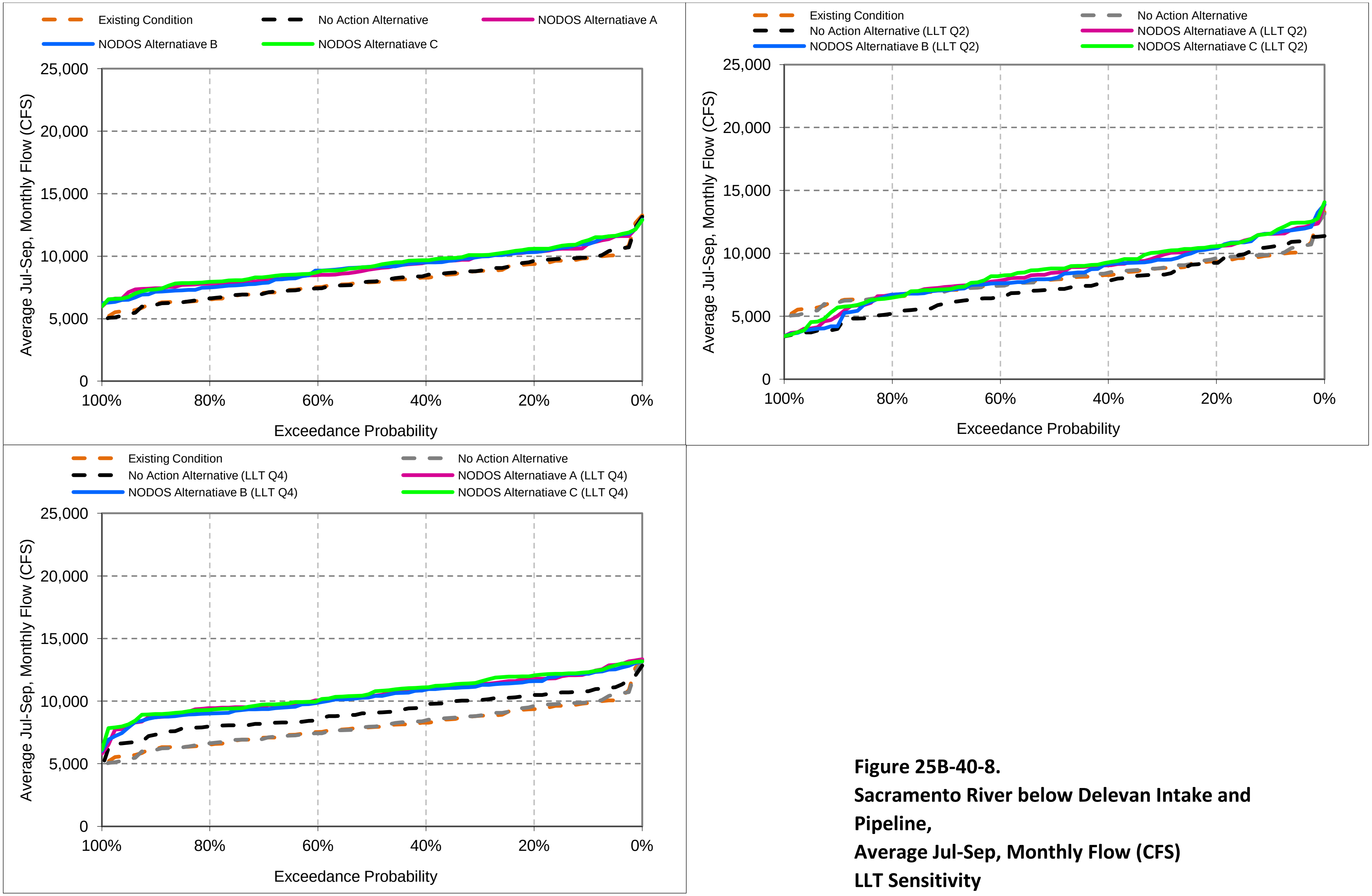


Figure 25B-40-8.
Sacramento River below Delevan Intake and Pipeline,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-41-1.
Lake Oroville
End of Month Storage (TAF)
ELT and LLT trend

Long Term Average[1]

	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	3,002	--	-94	-208	1,831	--	-211	-426
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	3,041	+40	+22	+25	1,844	+13	-7	+4
NODOS Alternative B	3,038	+36	+29	+42	1,841	+9	+3	+35
NODOS Alternative C	3,038	+36	+22	+25	1,838	+7	-13	+1

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	3,538	--	+0	+0	2,695	--	-338	-645
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,538	+0	+0	+0	2,659	-36	-38	+2
NODOS Alternative B	3,538	+0	+0	+0	2,650	-45	-8	+20
NODOS Alternative C	3,538	+0	+0	+0	2,653	-43	-52	-6
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	3,475	--	-83	-189	2,012	--	-203	-451
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,492	+17	+1	+3	2,062	+51	-1	+37
NODOS Alternative B	3,484	+9	-2	+5	2,067	+55	-10	+65
NODOS Alternative C	3,488	+13	-2	-6	2,060	+48	-17	+29
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	3,014	--	-146	-355	1,605	--	-206	-403
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,074	+60	+21	+5	1,600	-4	+20	-8
NODOS Alternative B	3,074	+60	+36	+60	1,599	-6	+20	+14
NODOS Alternative C	3,070	+56	+18	+24	1,605	+0	+32	-16
Lower (100%-75% exceedence)								
Change in No Action Alternative:	2,003	--	-150	-295	1,011	--	-97	-205
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,085	+81	+66	+91	1,055	+44	-9	-16
NODOS Alternative B	2,078	+75	+83	+102	1,046	+35	+11	+42
NODOS Alternative C	2,080	+76	+71	+80	1,035	+24	-13	-5

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

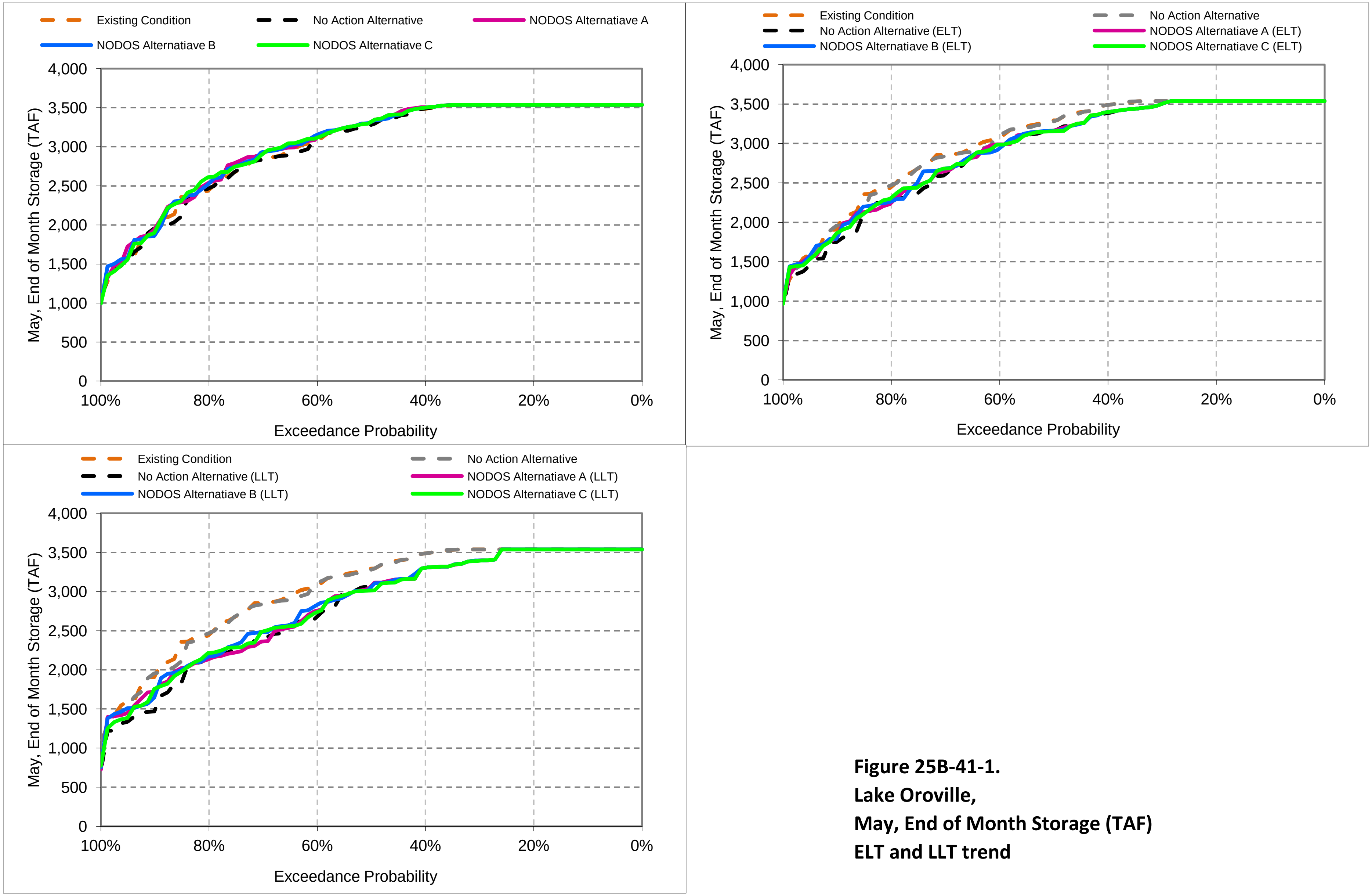
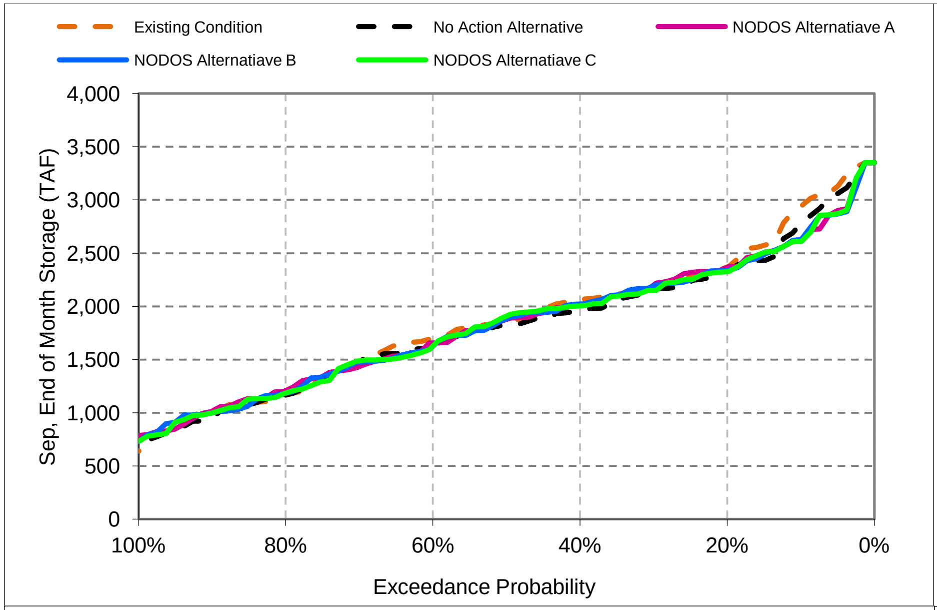
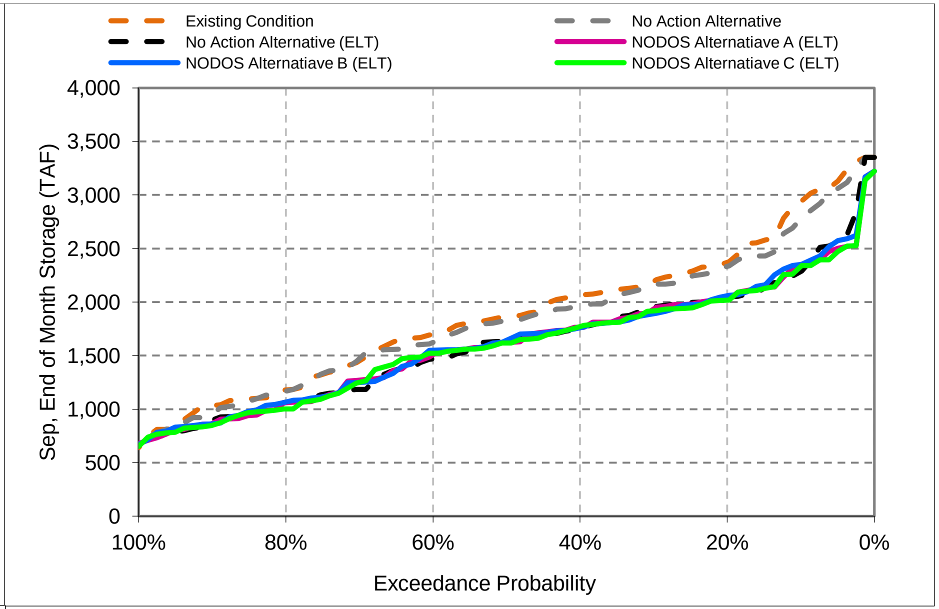


Figure 25B-41-1.
Lake Oroville,
May, End of Month Storage (TAF)
ELT and LLT trend





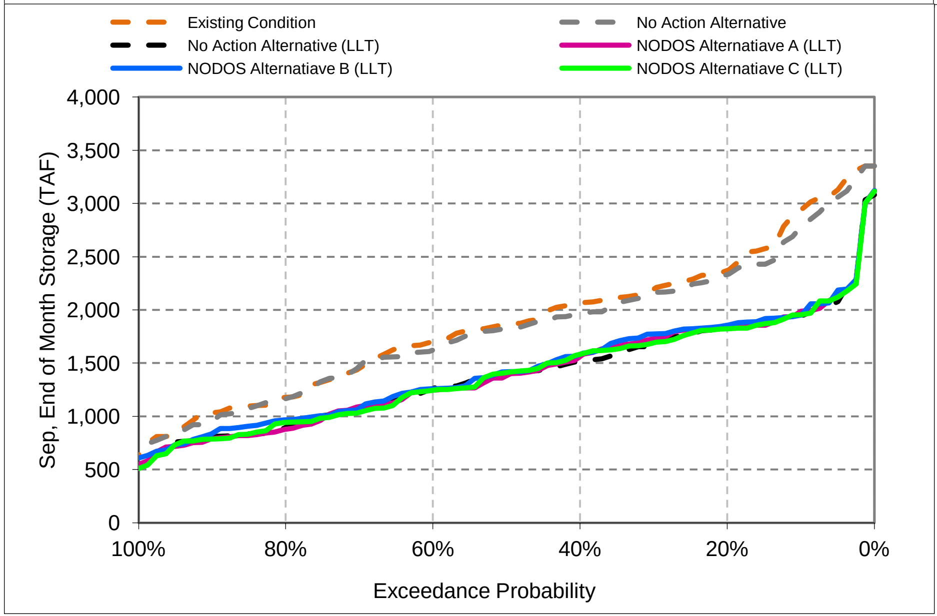


Figure 25B-41-2.
Lake Oroville,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-41-2.
Lake Oroville
End of Month Storage (TAF)
LLT Sensitivity

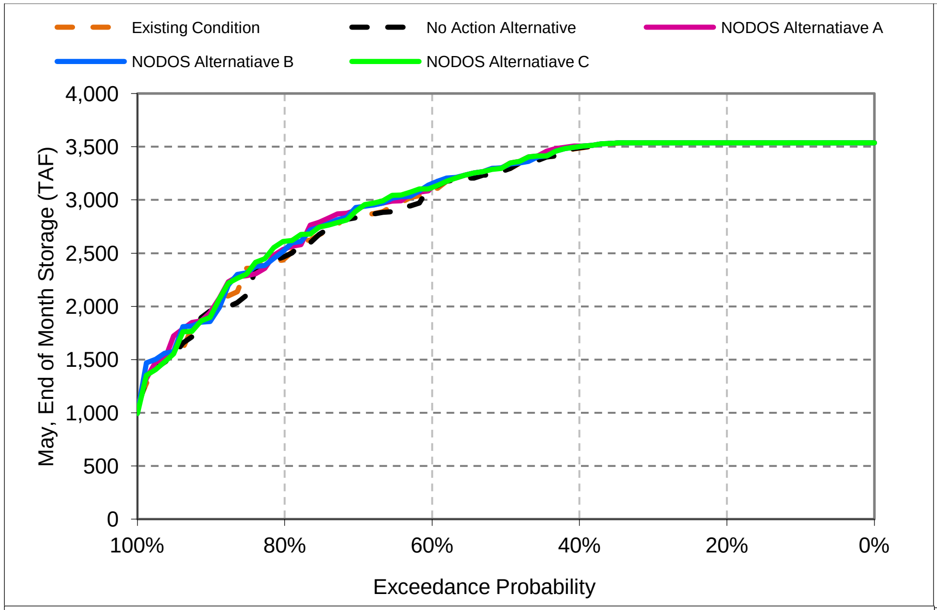
Long Term Average[1]

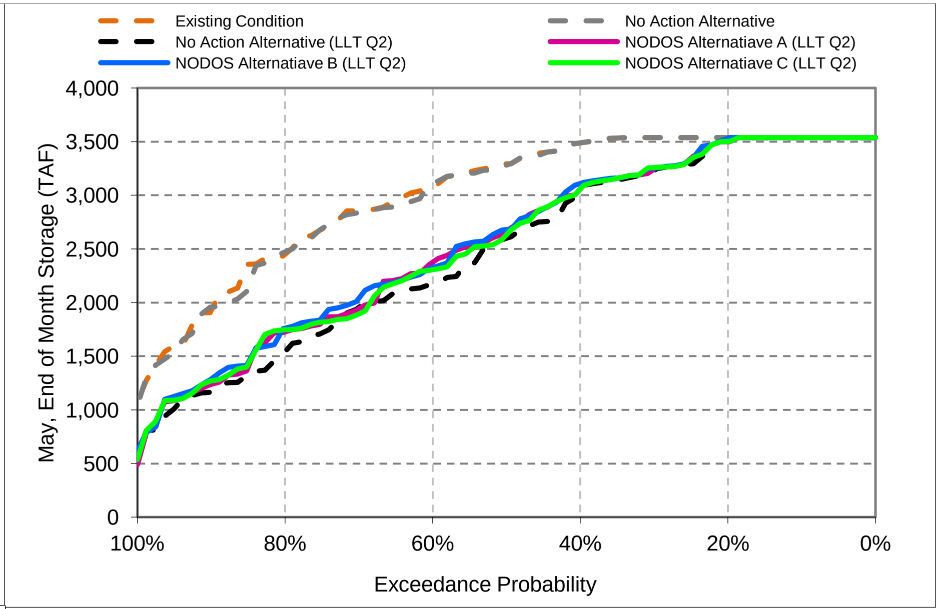
	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	3,002	--	-521	+51	1,831	--	-606	-183
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	3,041	+40	+61	+37	1,844	+13	+65	+33
NODOS Alternative B	3,038	+36	+79	+23	1,841	+9	+85	+10
NODOS Alternative C	3,038	+36	+56	+32	1,838	+7	+39	+12

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	3,538	--	-26	+0	2,695	--	-881	-279
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,538	+0	+4	+0	2,659	-36	+91	+48
NODOS Alternative B	3,538	+0	+9	+0	2,650	-45	+151	+29
NODOS Alternative C	3,538	+0	+3	+0	2,653	-43	+57	+17
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	3,475	--	-454	+23	2,012	--	-634	-185
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,492	+17	+43	+9	2,062	+51	+100	+21
NODOS Alternative B	3,484	+9	+55	+2	2,067	+55	+114	-15
NODOS Alternative C	3,488	+13	+41	-5	2,060	+48	+71	+3
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	3,014	--	-859	+112	1,605	--	-598	-205
Change in Alternative from No Action Alternative:								
NODOS Alternative A	3,074	+60	+108	+16	1,600	-4	+55	+24
NODOS Alternative B	3,074	+60	+133	+13	1,599	-6	+68	+23
NODOS Alternative C	3,070	+56	+68	+6	1,605	+0	+22	+7
Lower (100%-75% exceedence)								
Change in No Action Alternative:	2,003	--	-759	+73	1,011	--	-311	-64
Change in Alternative from No Action Alternative:								
NODOS Alternative A	2,085	+81	+92	+122	1,055	+44	+15	+38
NODOS Alternative B	2,078	+75	+121	+75	1,046	+35	+8	+1
NODOS Alternative C	2,080	+76	+110	+124	1,035	+24	+5	+21

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





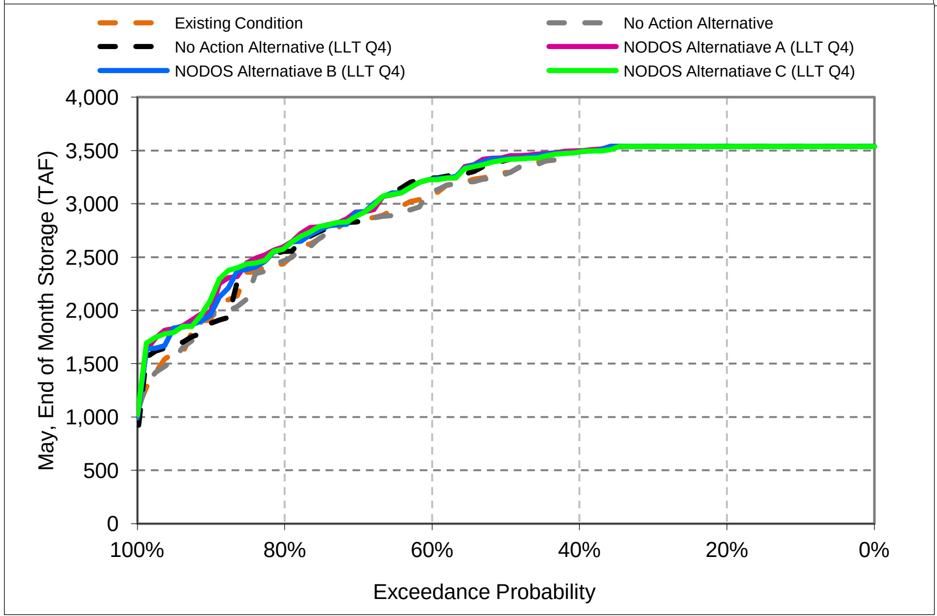
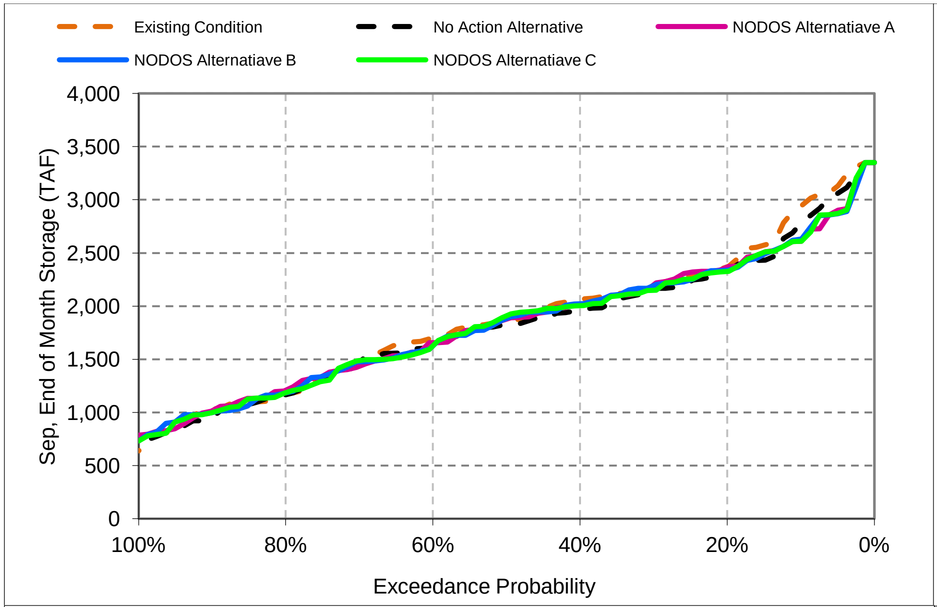
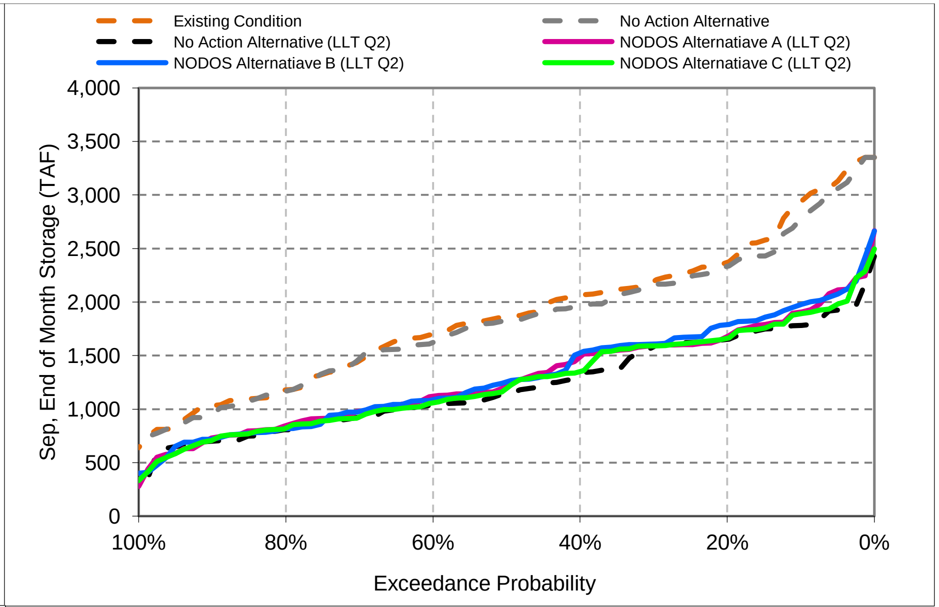


Figure 25B-41-3.
Lake Oroville,
May, End of Month Storage (TAF)
LLT Sensitivity





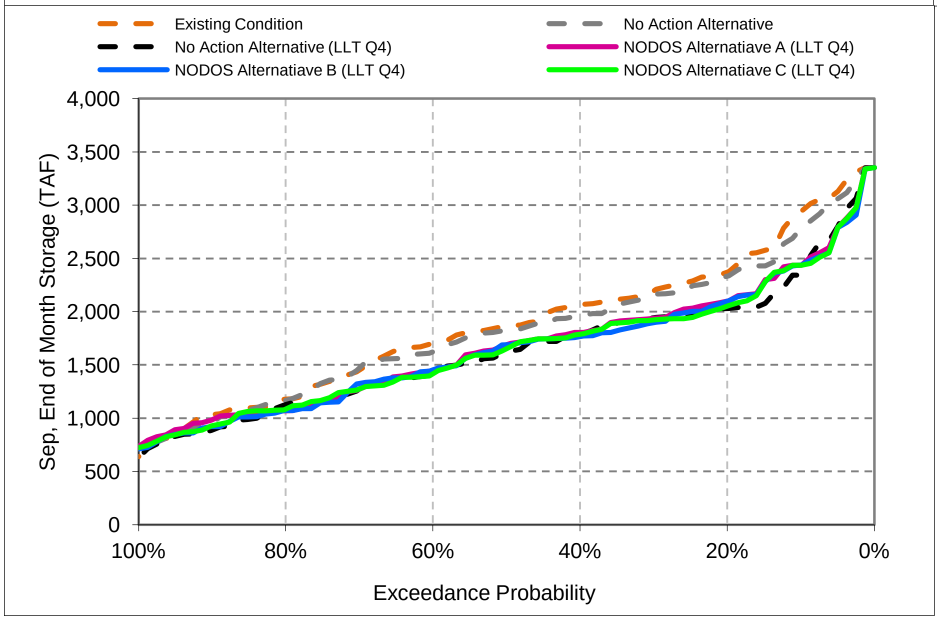


Figure 25B-41-4.
Lake Oroville,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-42-1.
Feather River below Thermalito
Monthly Flow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	2,827	--	-71	-328	5,367	--	+552	+745	3,500	--	-172	-223	5,849	--	+191	+269
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	2,653	-174	-114	-53	5,432	+65	-6	+17	3,508	+7	-31	-69	5,941	+93	+140	+124
NODOS Alternative B	2,708	-119	-132	-18	5,383	+16	+38	+77	3,461	-39	-36	-115	5,984	+136	+128	+71
NODOS Alternative C	2,642	-186	-158	-87	5,434	+67	+5	+34	3,512	+11	-1	-58	5,963	+115	+147	+140

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	5,019	--	-49	-721	13,155	--	+1,829	+2,600	7,896	--	-948	-1,685	8,153	--	+343	+232
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,790	-230	-261	-202	13,233	+77	-118	-26	7,959	+64	+59	+15	8,047	-106	-89	+217
NODOS Alternative B	4,786	-234	-314	-173	13,222	+66	-12	-7	7,922	+26	+85	+37	8,133	-20	-64	+213
NODOS Alternative C	4,700	-319	-388	-301	13,187	+32	-104	-21	7,970	+75	+86	+27	8,055	-98	-98	+183
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	2,878	--	-126	-231	5,139	--	+335	+200	2,714	--	-39	+118	6,444	--	+537	+986
Change in Alternative from No Action Alternative:																
NODOS Alternative A	2,596	-283	-113	-40	5,301	+163	+83	+201	2,696	-17	-33	-20	6,577	+133	-36	-61
NODOS Alternative B	2,695	-183	-97	-3	5,188	+50	+111	+297	2,665	-49	+2	-68	6,658	+214	-122	-175
NODOS Alternative C	2,605	-274	-126	-53	5,413	+274	+123	+296	2,690	-24	+19	-57	6,694	+250	+27	-101
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	2,024	--	-39	-217	1,887	--	-1	+48	1,972	--	+136	+288	5,520	--	-29	+58
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,932	-92	-44	+21	1,906	+19	+43	-82	1,851	-121	-97	-51	5,541	+21	+244	+41
NODOS Alternative B	2,021	-3	-51	+53	1,845	-41	+40	+3	1,829	-143	-144	-159	5,564	+44	+203	+30
NODOS Alternative C	1,950	-74	-46	-3	1,837	-50	+42	-103	1,874	-98	-71	-35	5,564	+44	+323	+173
Lower (100%-75% exceedence)																
Change in No Action Alternative:	1,278	--	-70	-126	1,111	--	+8	+71	1,310	--	+184	+428	3,291	--	-81	-176
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,188	-90	-31	+18	1,115	+4	-24	-19	1,408	+98	-55	-216	3,611	+320	+439	+287
NODOS Alternative B	1,229	-50	-55	+57	1,098	-13	+15	+23	1,312	+2	-90	-271	3,596	+305	+485	+201
NODOS Alternative C	1,209	-69	-63	+19	1,127	+16	-32	-29	1,396	+87	-42	-165	3,556	+265	+339	+294

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
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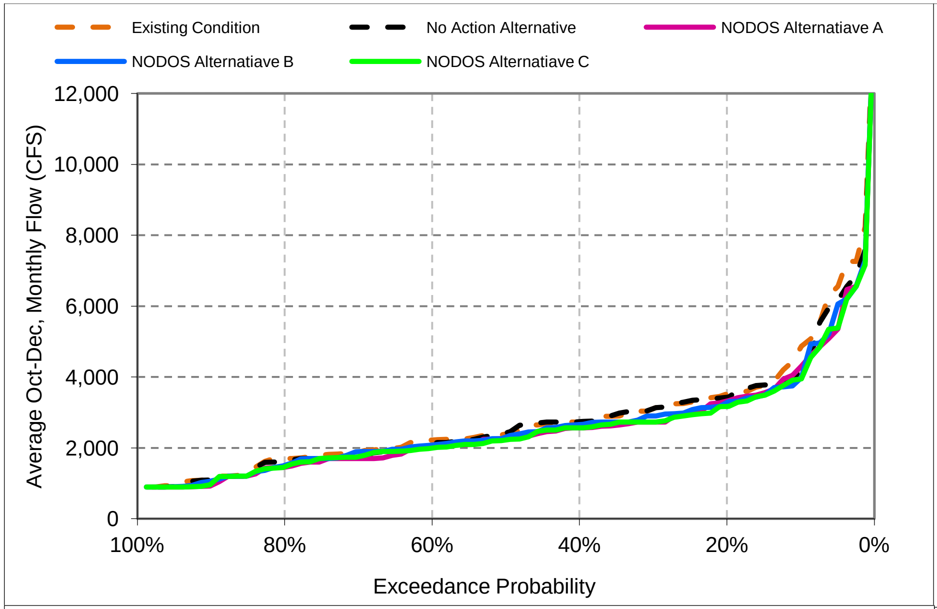
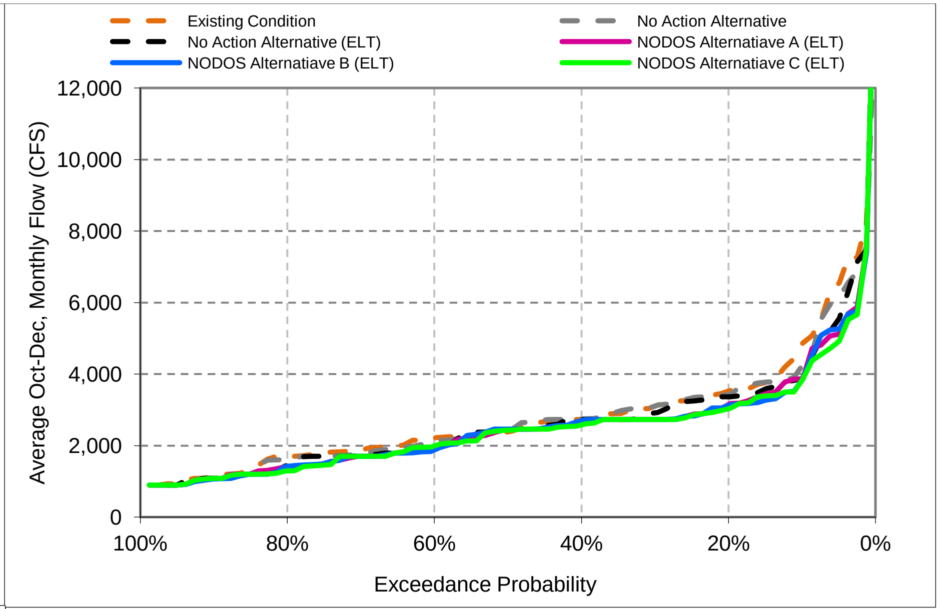
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





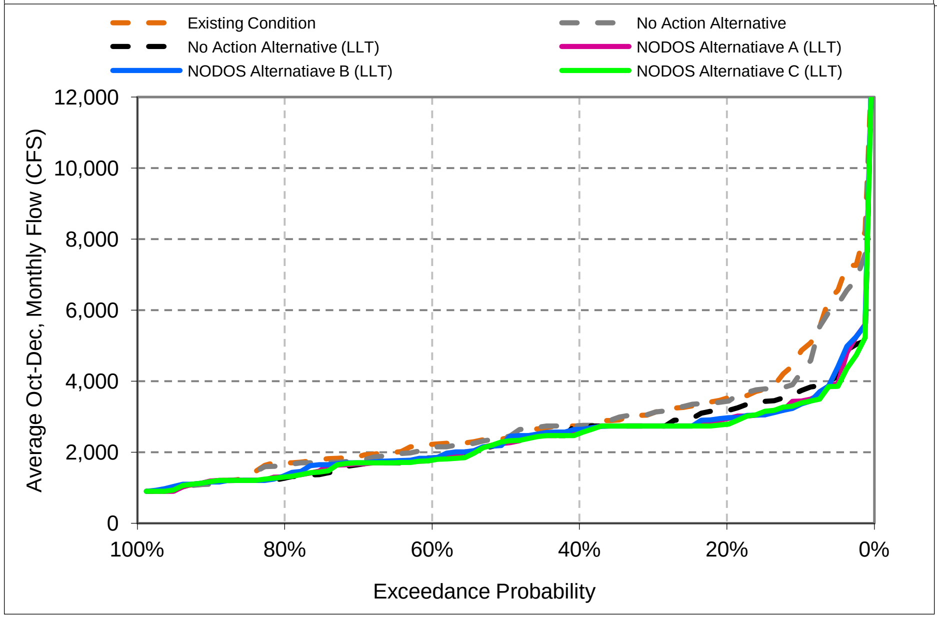


Figure 25B-42-1.
Feather River below Thermalito,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend

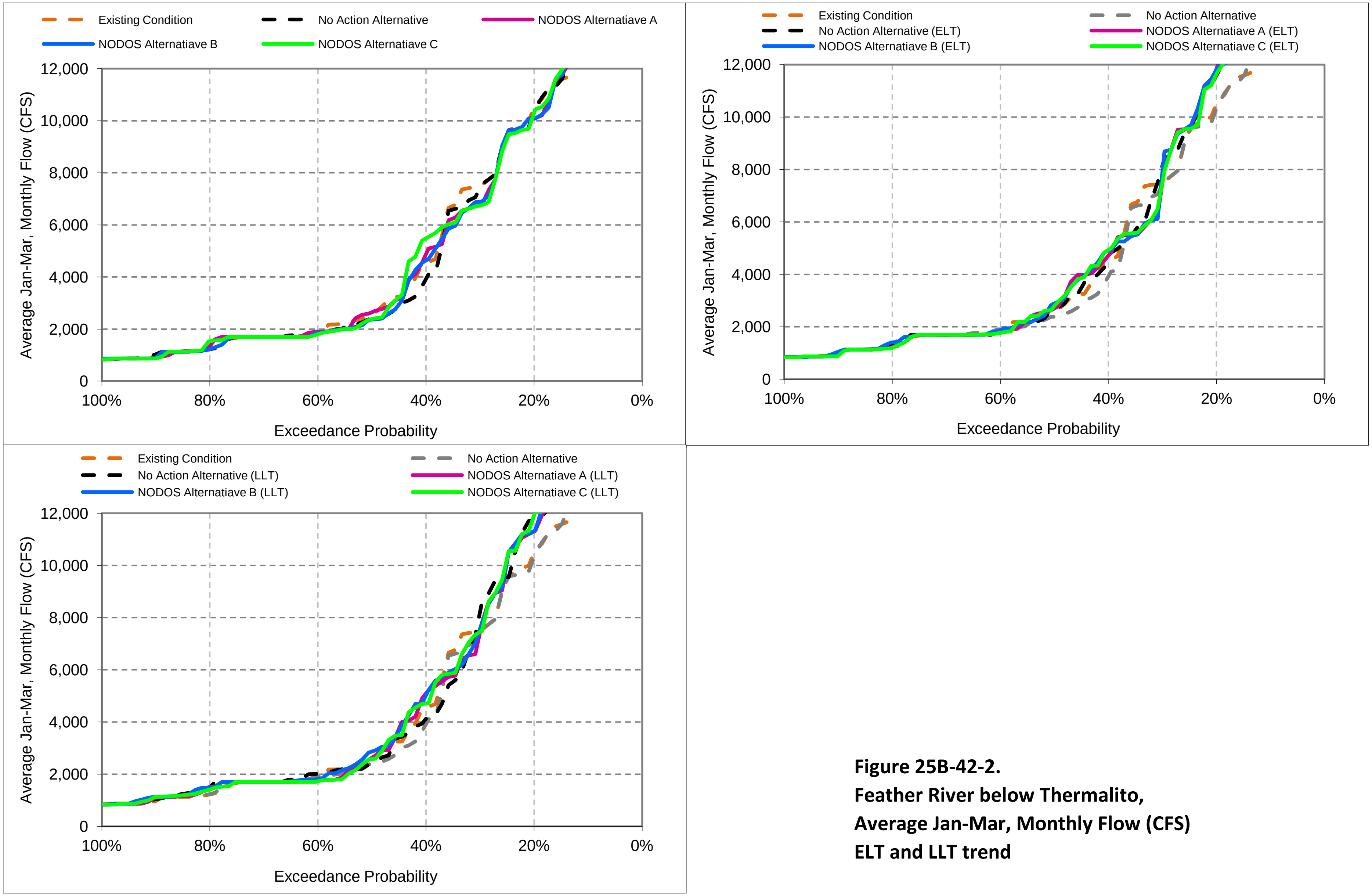


Figure 25B-42-2.
Feather River below Thermalito,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend

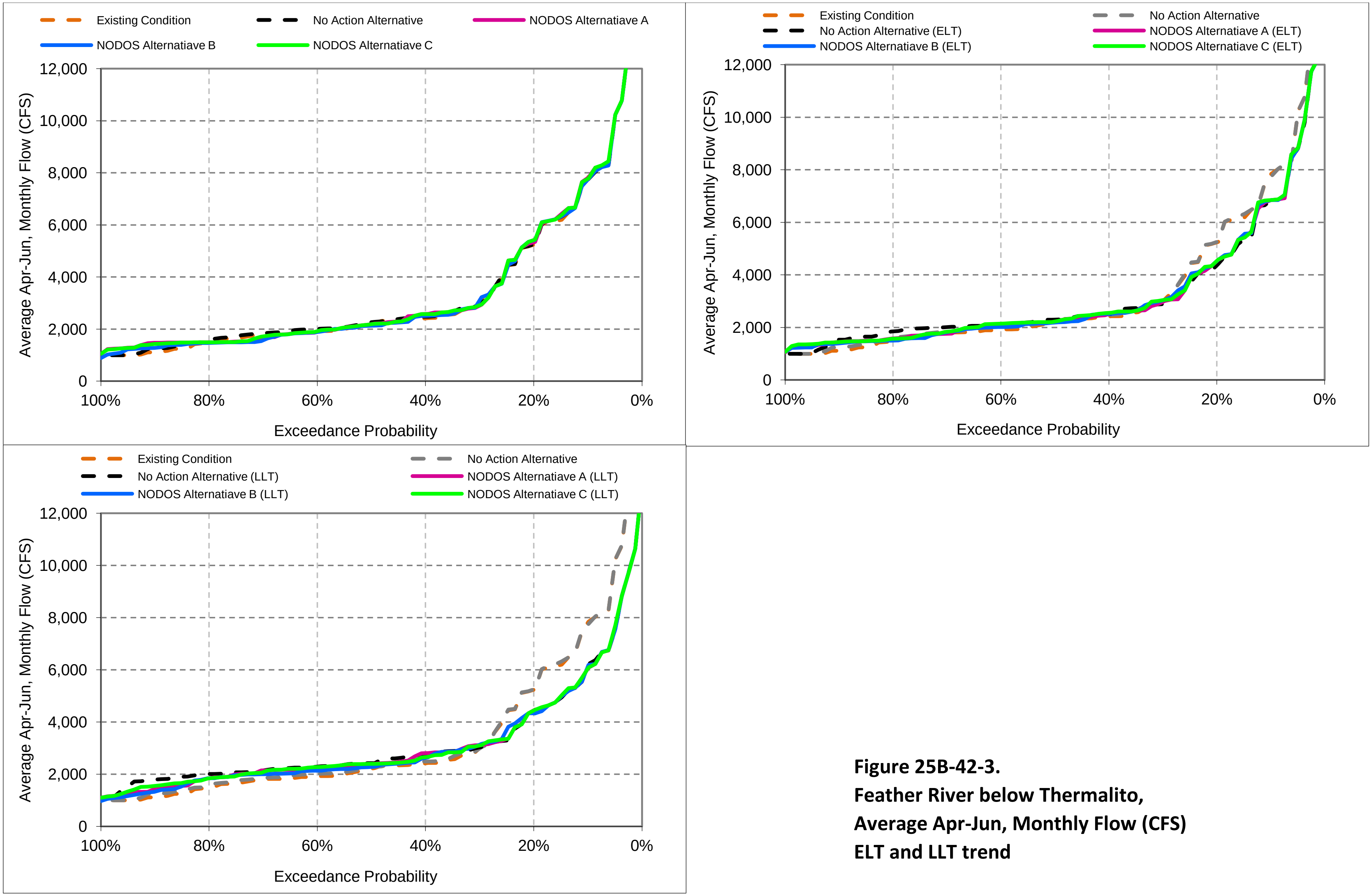
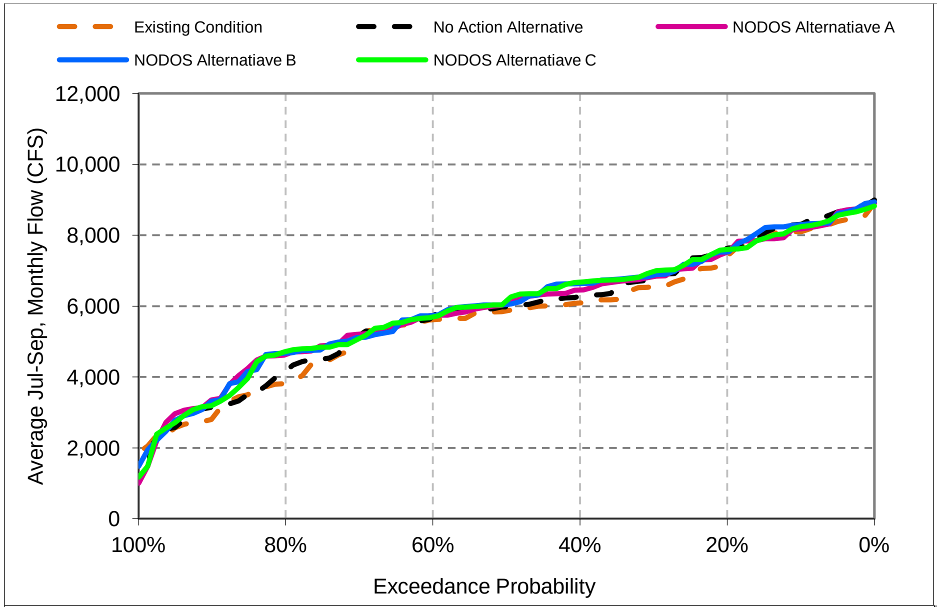
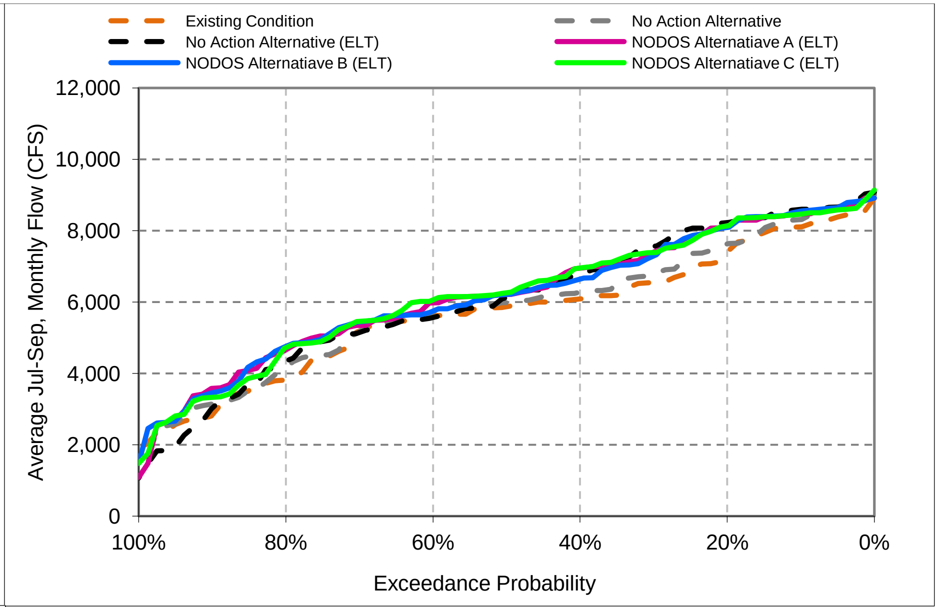


Figure 25B-42-3.
Feather River below Thermalito,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





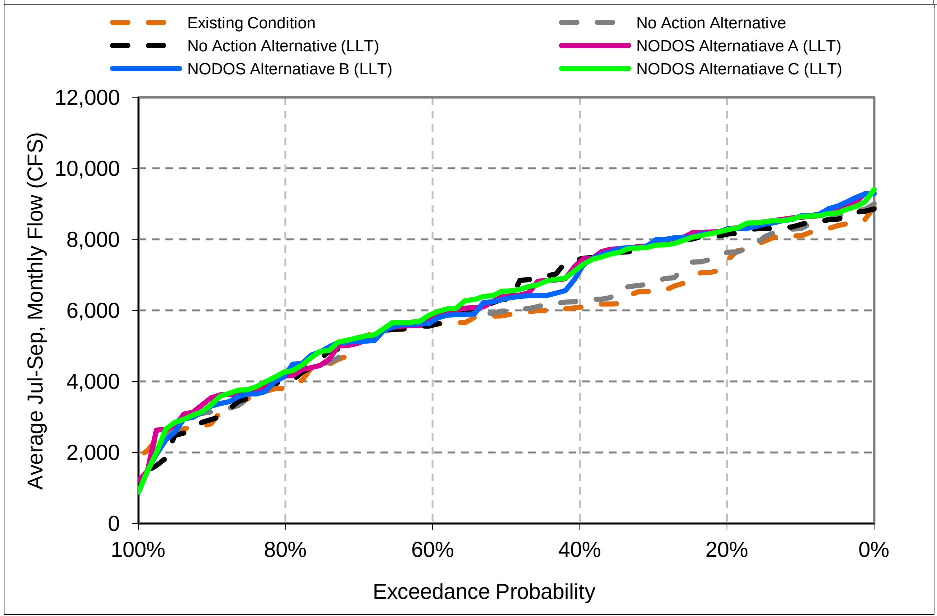


Figure 25B-42-4.
Feather River below Thermalito,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-42-2.
Feather River below Thermalito
Monthly Flow (CFS)
LLT Sensitivity

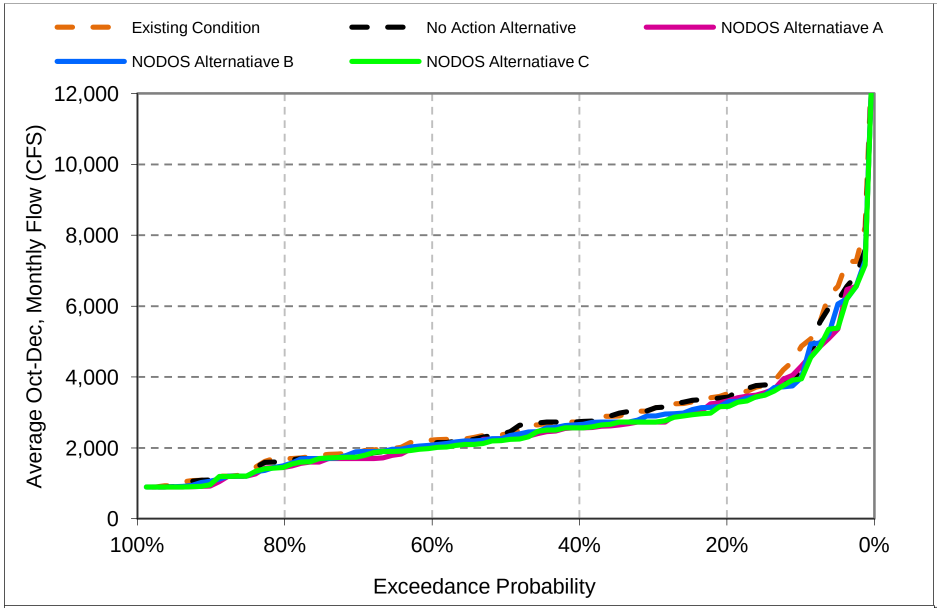
Long Term Average[1]

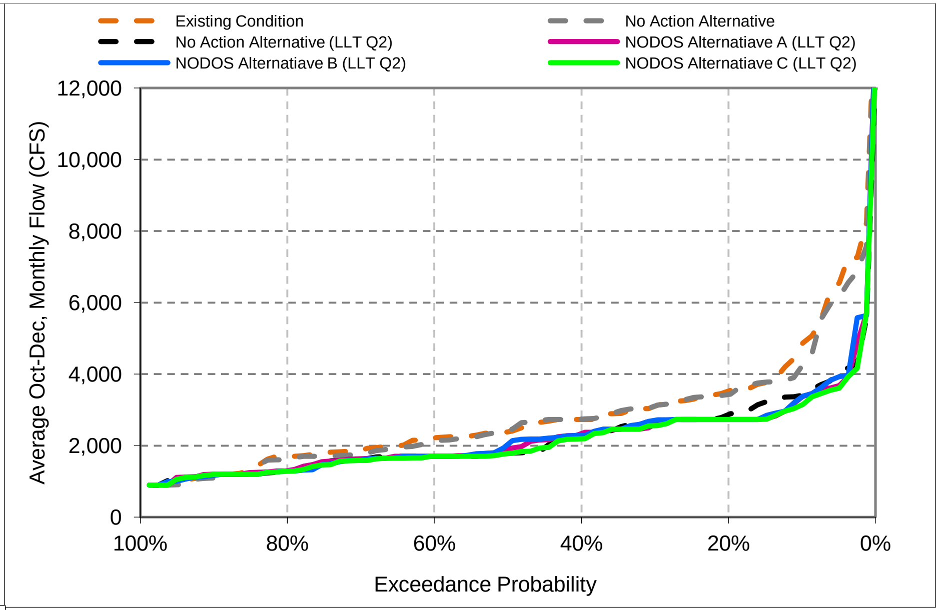
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	2,827	--	-541	+157	5,367	--	-782	+2,243	3,500	--	-539	+274	5,849	--	-663	+817
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	2,653	-174	-2	-127	5,432	+65	+84	+111	3,508	+7	-124	+9	5,941	+93	+10	-3
NODOS Alternative B	2,708	-119	+18	-121	5,383	+16	+105	+83	3,461	-39	-190	-32	5,984	+136	+36	+55
NODOS Alternative C	2,642	-186	-68	-142	5,434	+67	+40	+41	3,512	+11	-94	+20	5,963	+115	+98	+64

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	5,019	--	-1,155	+410	13,155	--	-1,001	+5,496	7,896	--	-2,706	+367	8,153	--	-65	+600
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,790	-230	-76	-197	13,233	+77	+385	+50	7,959	+64	-6	-8	8,047	-106	+66	+29
NODOS Alternative B	4,786	-234	-12	-167	13,222	+66	+427	-13	7,922	+26	-58	+33	8,133	-20	-98	+55
NODOS Alternative C	4,700	-319	-189	-201	13,187	+32	+283	-65	7,970	+75	-17	+28	8,055	-98	+84	+14
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	2,878	--	-551	+10	5,139	--	-2,025	+3,128	2,714	--	-9	+280	6,444	--	+58	+1,370
Change in Alternative from No Action Alternative:																
NODOS Alternative A	2,596	-283	+48	-213	5,301	+163	-10	+436	2,696	-17	-111	+80	6,577	+133	-350	-223
NODOS Alternative B	2,695	-183	+99	-179	5,188	+50	+39	+412	2,665	-49	-103	-26	6,658	+214	-379	-107
NODOS Alternative C	2,605	-274	-37	-162	5,413	+274	-48	+383	2,690	-24	-56	+61	6,694	+250	-235	-135
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	2,024	--	-340	+236	1,887	--	-149	+164	1,972	--	+258	+208	5,520	--	-1,314	+819
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,932	-92	+9	-118	1,906	+19	-18	+4	1,851	-121	-190	+10	5,541	+21	-85	-117
NODOS Alternative B	2,021	-3	+3	-131	1,845	-41	-43	-47	1,829	-143	-251	-64	5,564	+44	+83	-10
NODOS Alternative C	1,950	-74	-30	-135	1,837	-50	-32	-93	1,874	-98	-148	+7	5,564	+44	+61	-23
Lower (100%-75% exceedence)																
Change in No Action Alternative:	1,278	--	-87	-41	1,111	--	+19	+128	1,310	--	+362	+238	3,291	--	-1,326	+506
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,188	-90	+17	+24	1,115	+4	-31	-36	1,408	+98	-191	-42	3,611	+320	+389	+283
NODOS Alternative B	1,229	-50	-16	-5	1,098	-13	-15	-9	1,312	+2	-348	-73	3,596	+305	+521	+270
NODOS Alternative C	1,209	-69	-9	-66	1,127	+16	-50	-52	1,396	+87	-157	-15	3,556	+265	+462	+387

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





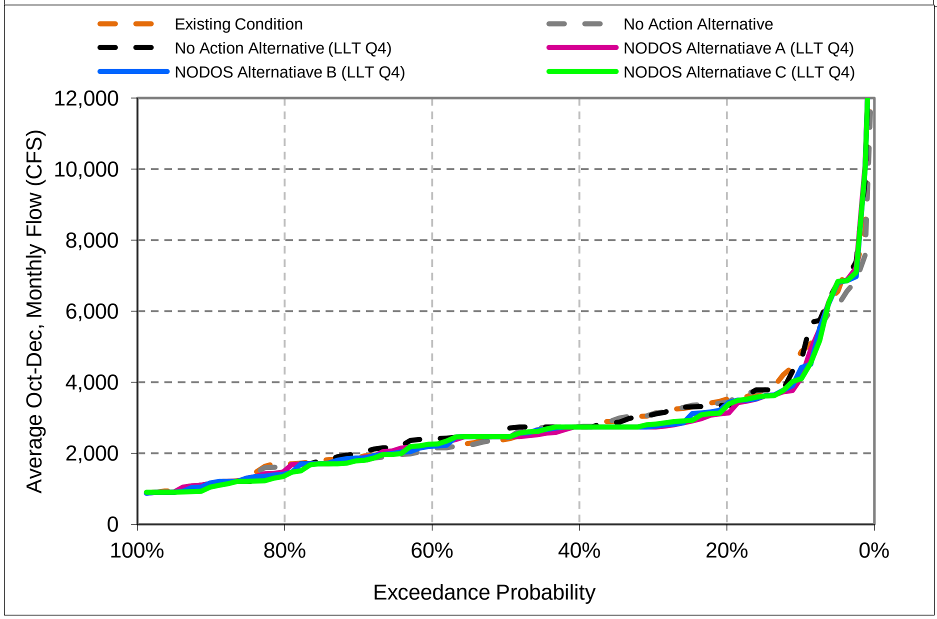
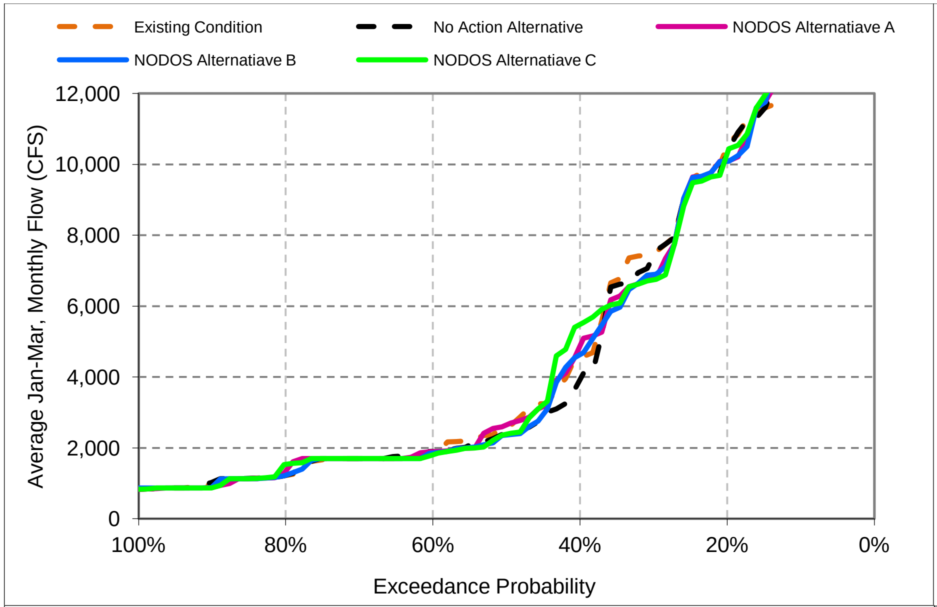
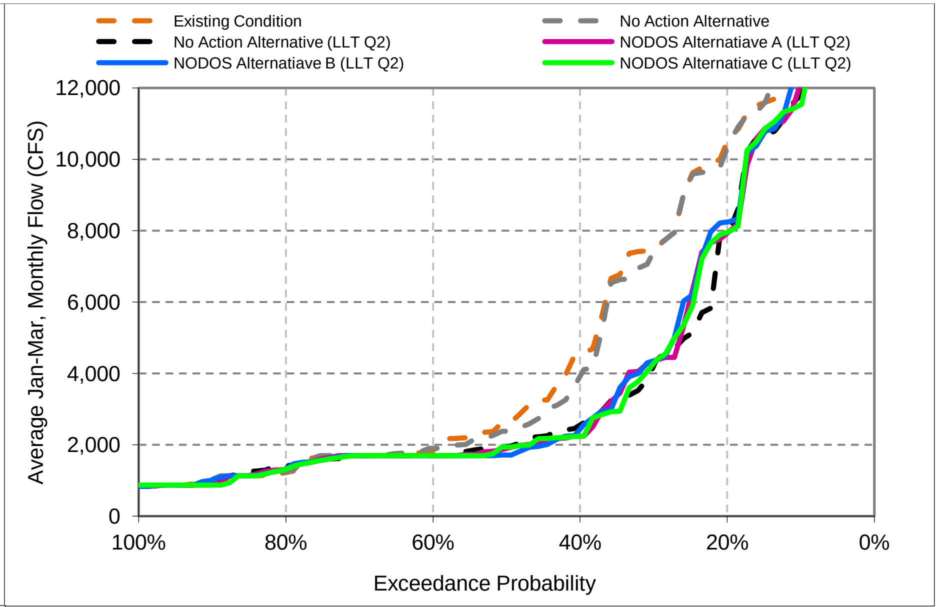


Figure 25B-42-5.
Feather River below Thermalito,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





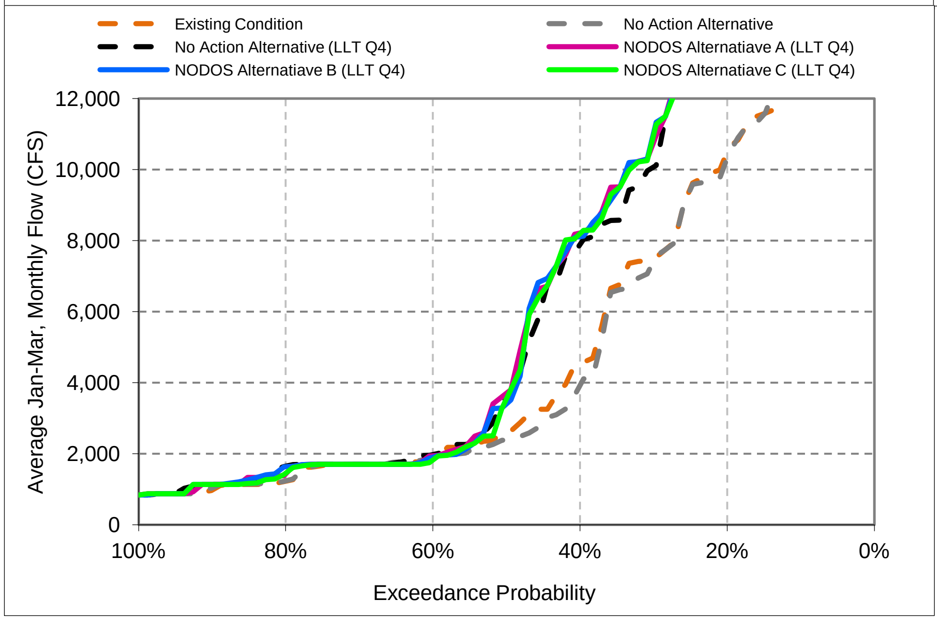


Figure 25B-42-6.
Feather River below Thermalito,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity

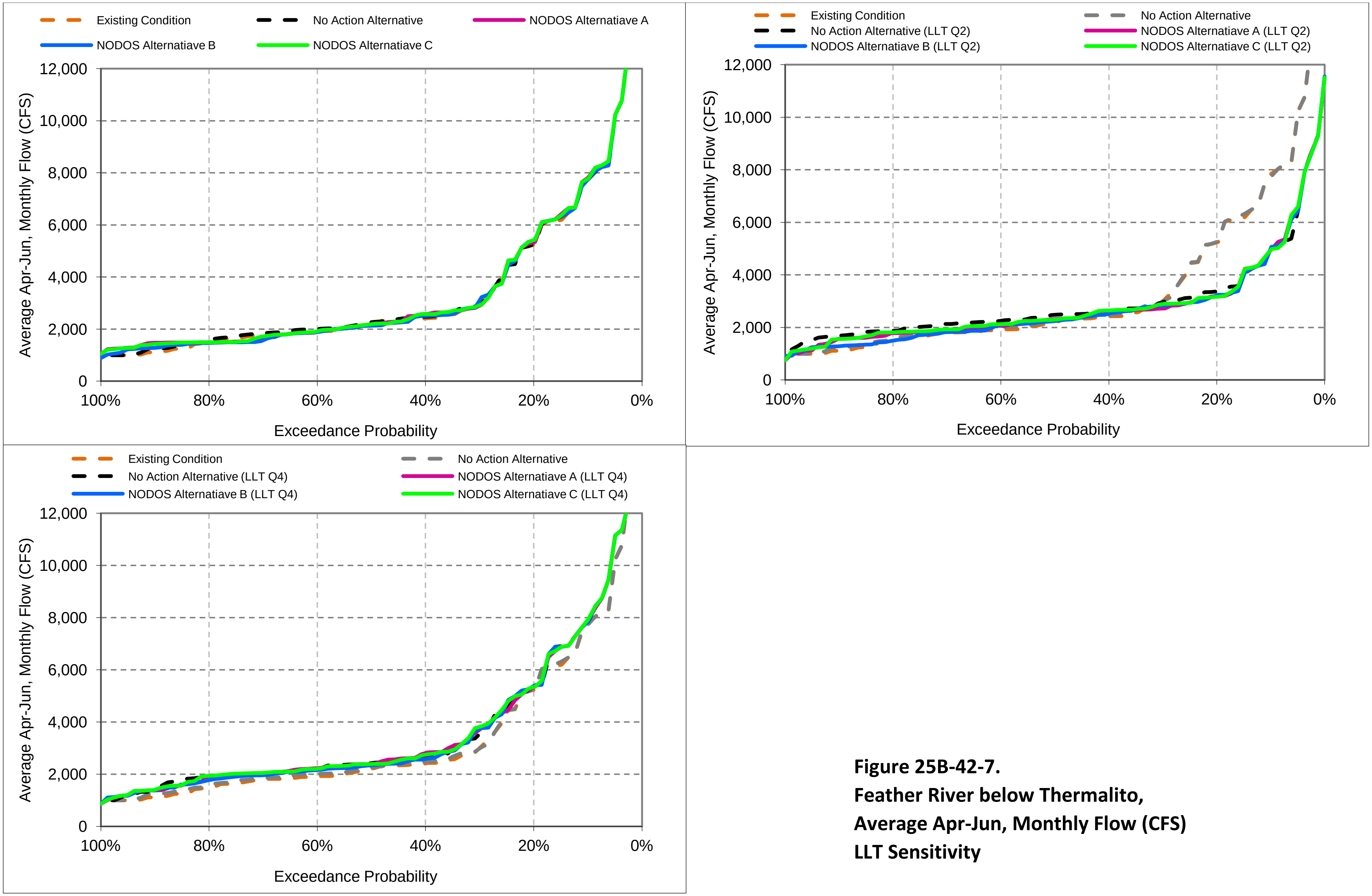


Figure 25B-42-7.
Feather River below Thermalito,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity

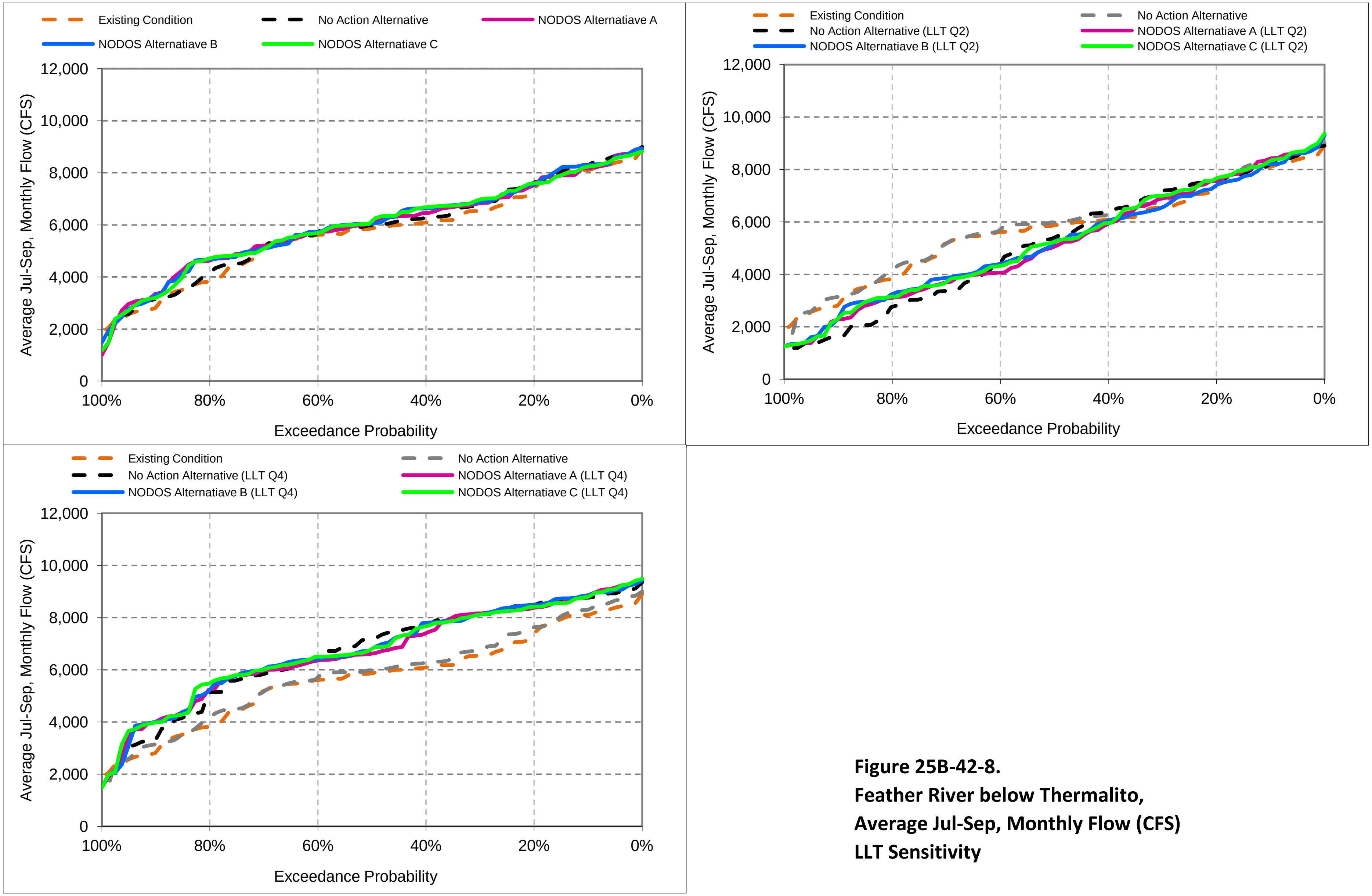


Figure 25B-42-8.
Feather River below Thermalito,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-43-1.
Folsom Lake
End of Month Storage (TAF)
ELT and LLT trend

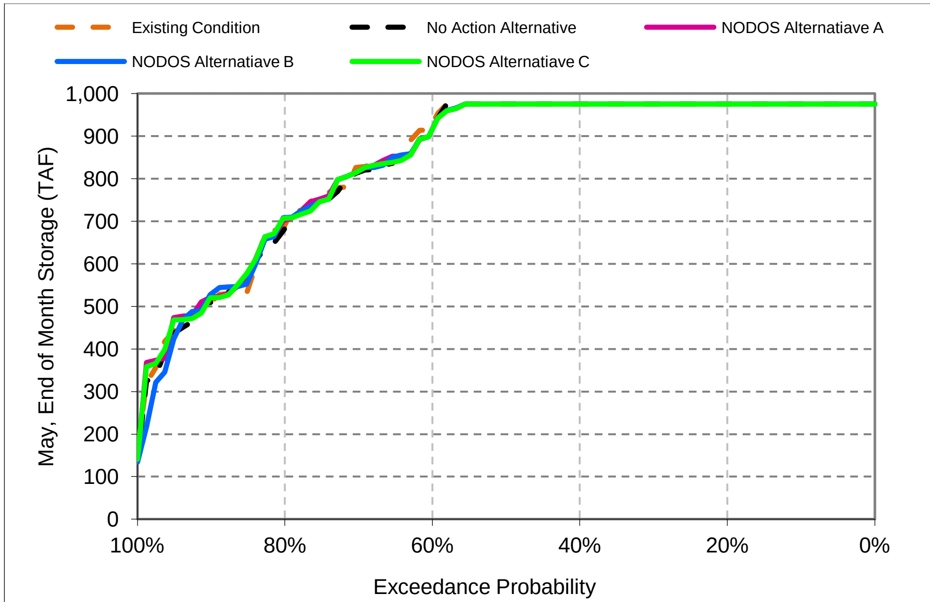
Long Term Average[1]

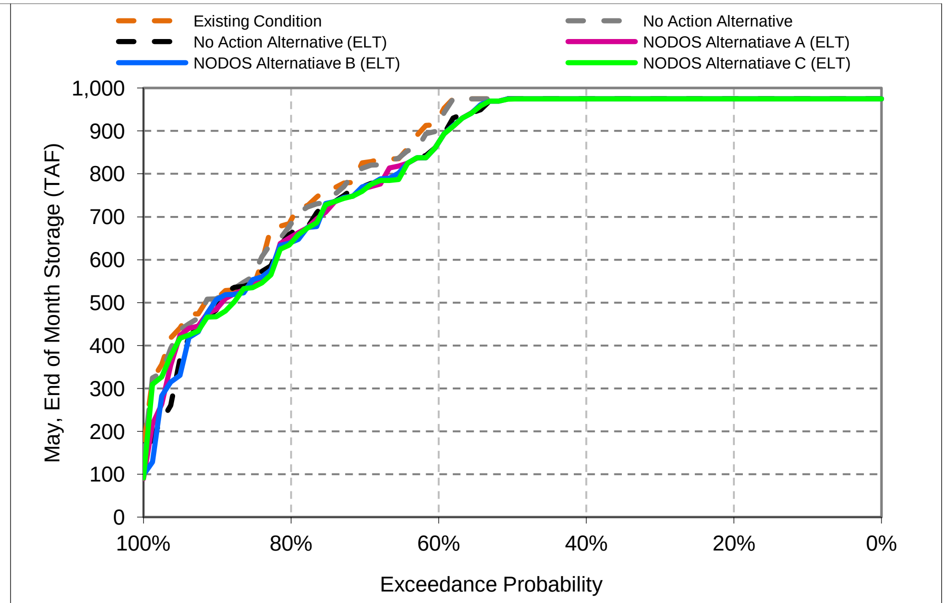
	End of May				End of Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	840	--	-18	-51	496	--	-48	-116
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	844	+4	+1	+4	518	+22	+28	+30
NODOS Alternative B	840	+0	-2	+9	518	+22	+28	+35
NODOS Alternative C	843	+3	+1	+3	520	+24	+28	+28

Quartile Averages

	End of May				End of Sep			
	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)								
Change in No Action Alternative:	975	--	+0	+0	648	--	-26	-75
Change in Alternative from No Action Alternative:								
NODOS Alternative A	975	+0	+0	+0	650	+2	+26	+32
NODOS Alternative B	975	+0	+0	+0	650	+2	+22	+21
NODOS Alternative C	975	+0	+0	+0	650	+2	+23	+29
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	975	--	+0	-18	594	--	-64	-166
Change in Alternative from No Action Alternative:								
NODOS Alternative A	975	+0	+0	+4	627	+32	+50	+39
NODOS Alternative B	975	+0	+0	+4	612	+18	+37	+48
NODOS Alternative C	975	+0	+0	+2	627	+32	+48	+37
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	886	--	-31	-92	461	--	-50	-116
Change in Alternative from No Action Alternative:								
NODOS Alternative A	888	+3	-0	+3	509	+48	+14	+10
NODOS Alternative B	888	+2	-1	+7	506	+45	+18	+20
NODOS Alternative C	887	+1	-3	-1	512	+51	+19	+10
Lower (100%-75% exceedence)								
Change in No Action Alternative:	533	--	-39	-94	283	--	-53	-109
Change in Alternative from No Action Alternative:								
NODOS Alternative A	545	+12	+4	+7	291	+9	+24	+38
NODOS Alternative B	531	-2	-6	+23	307	+24	+33	+51
NODOS Alternative C	543	+10	+5	+11	296	+14	+21	+35

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





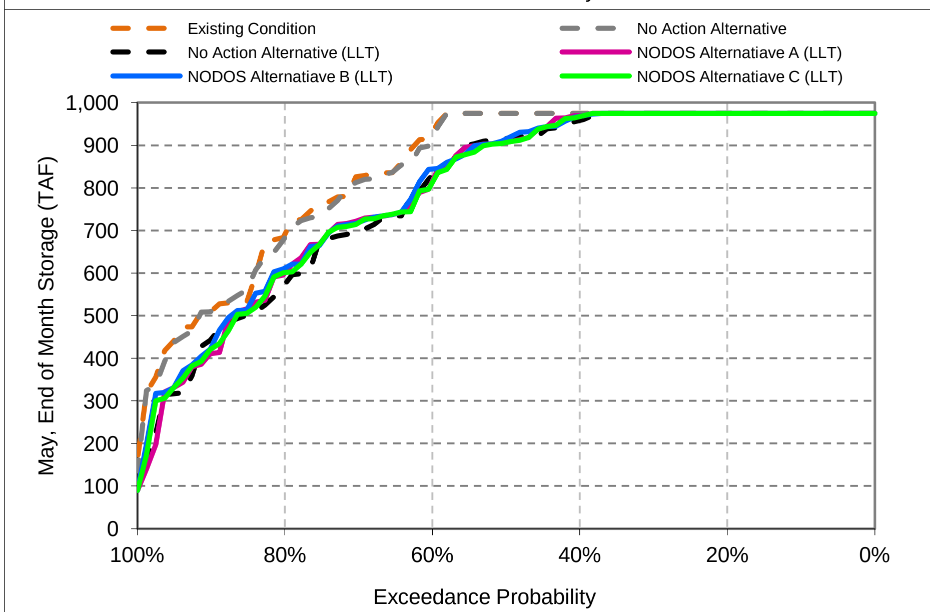


Figure 25B-43-1.
Folsom Lake,
May, End of Month Storage (TAF)
ELT and LLT trend

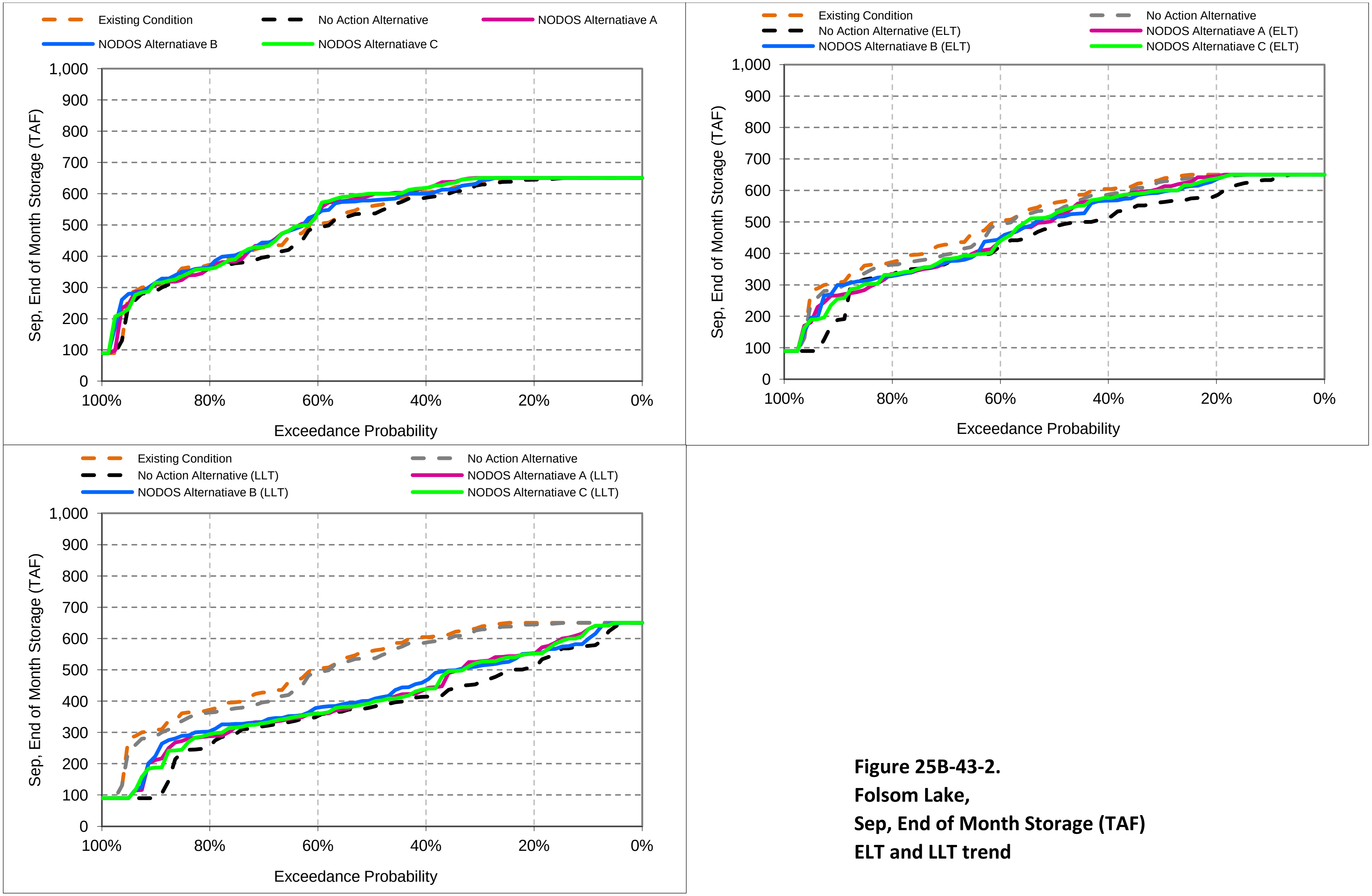


Figure 25B-43-2.
Folsom Lake,
Sep, End of Month Storage (TAF)
ELT and LLT trend

Table 25B-43-2.
Folsom Lake
End of Month Storage (TAF)
LLT Sensitivity

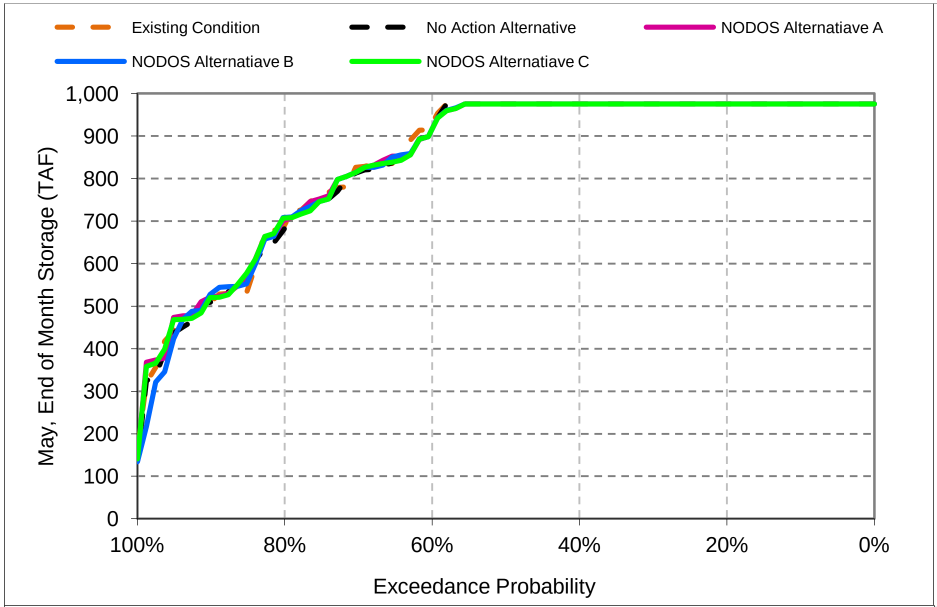
Long Term Average[1]

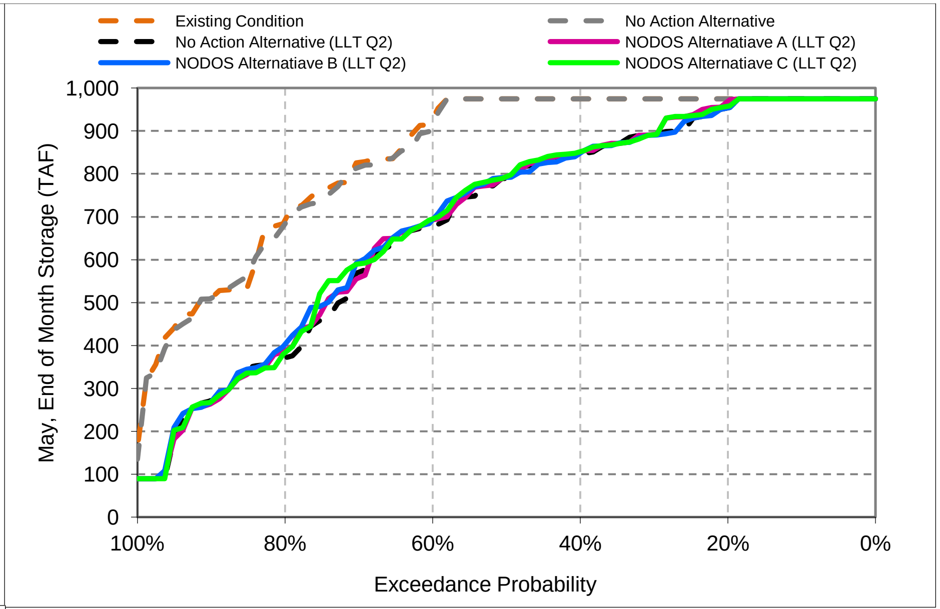
	End of May				End of Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	840	--	-151	+12	496	--	-186	-55
Change in Alternative from No Action Alternative[4]:								
NODOS Alternative A	844	+4	+5	+1	518	+22	+22	+35
NODOS Alternative B	840	+0	+7	-1	518	+22	+31	+36
NODOS Alternative C	843	+3	+8	+1	520	+24	+24	+40

Quartile Averages

	End of May				End of Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)								
Change in No Action Alternative:	975	--	-8	+0	648	--	-157	-28
Change in Alternative from No Action Alternative:								
NODOS Alternative A	975	+0	+3	+0	650	+2	+22	+23
NODOS Alternative B	975	+0	-0	+0	650	+2	+25	+11
NODOS Alternative C	975	+0	+1	+0	650	+2	+37	+22
Above Median (50%-25% exceedence)								
Change in No Action Alternative:	975	--	-117	+0	594	--	-227	-74
Change in Alternative from No Action Alternative:								
NODOS Alternative A	975	+0	+6	+0	627	+32	+10	+37
NODOS Alternative B	975	+0	-1	+0	612	+18	+38	+24
NODOS Alternative C	975	+0	+8	+0	627	+32	+15	+36
Below Median (75%-50% exceedence)								
Change in No Action Alternative:	886	--	-231	+3	461	--	-195	-82
Change in Alternative from No Action Alternative:								
NODOS Alternative A	888	+3	+9	-6	509	+48	+42	+45
NODOS Alternative B	888	+2	+17	-5	506	+45	+44	+55
NODOS Alternative C	887	+1	+18	-5	512	+51	+39	+55
Lower (100%-75% exceedence)								
Change in No Action Alternative:	533	--	-250	+44	283	--	-168	-40
Change in Alternative from No Action Alternative:								
NODOS Alternative A	545	+12	+1	+10	291	+9	+14	+37
NODOS Alternative B	531	-2	+13	+0	307	+24	+17	+53
NODOS Alternative C	543	+10	+3	+7	296	+14	+6	+50

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





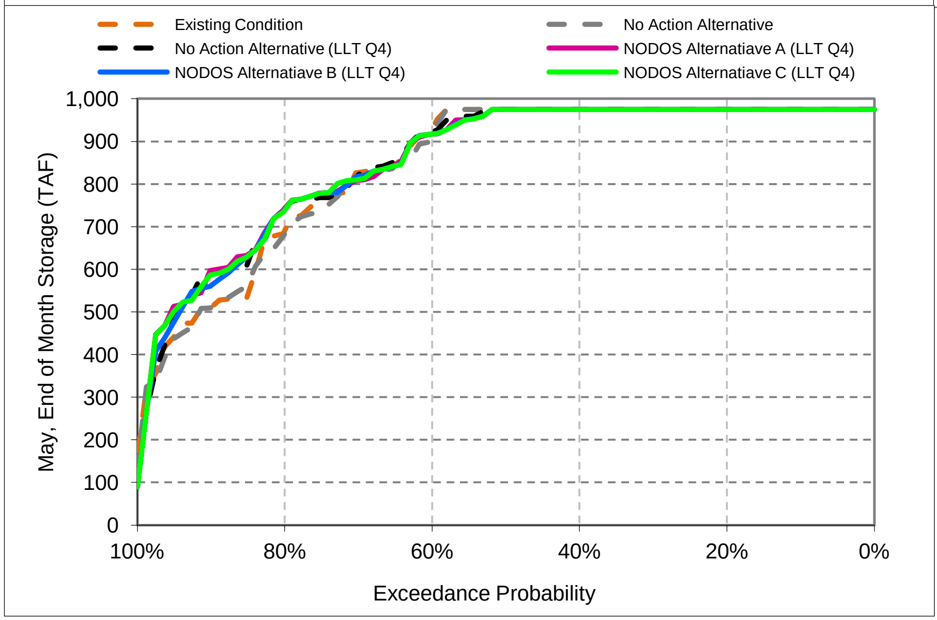


Figure 25B-43-3.
Folsom Lake,
May, End of Month Storage (TAF)
LLT Sensitivity

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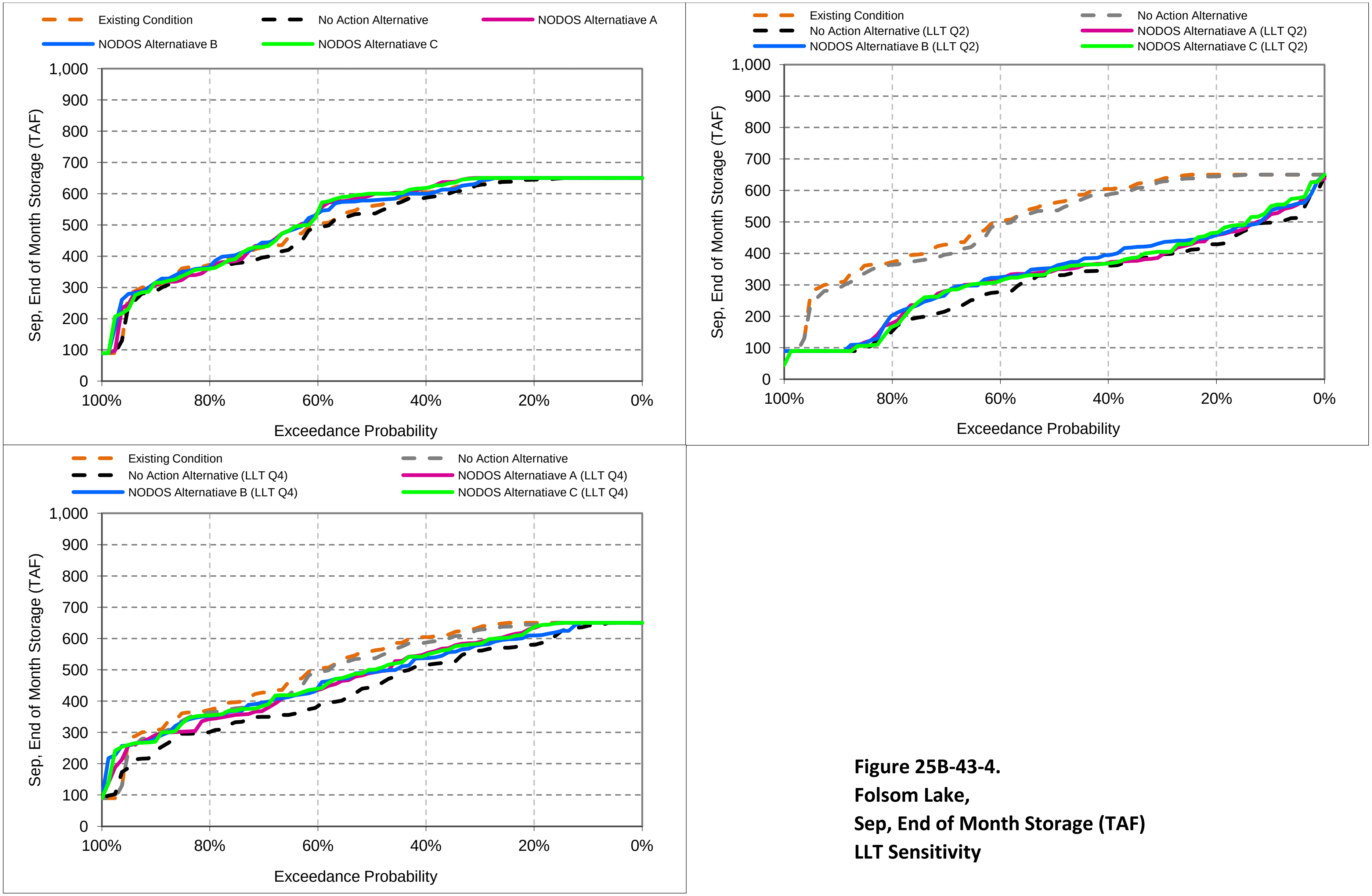

Figure 25B-43-4.
Folsom Lake,
Sep, End of Month Storage (TAF)
LLT Sensitivity

Table 25B-44-1.
American River at Watt Avenue
Monthly Flow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	2,443	--	+68	-195	4,288	--	+469	+795	3,336	--	-234	-474	2,864	--	-277	-401
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	2,493	+50	+89	+111	4,317	+28	+40	+18	3,338	+2	+1	-11	2,770	-93	-143	-141
NODOS Alternative B	2,511	+68	+112	+120	4,317	+28	+29	+32	3,337	+2	-9	-42	2,761	-103	-131	-127
NODOS Alternative C	2,516	+73	+109	+129	4,303	+14	+23	+4	3,331	-5	-4	-30	2,765	-99	-141	-128

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	4,800	--	+512	-29	9,167	--	+1,300	+2,184	6,663	--	-350	-1,004	3,890	--	-399	-514
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,884	+84	+172	+207	9,184	+17	+60	+57	6,666	+3	-11	-56	3,773	-117	-213	-227
NODOS Alternative B	4,845	+44	+179	+207	9,176	+8	+63	+61	6,665	+2	-8	-45	3,785	-104	-202	-156
NODOS Alternative C	4,848	+48	+170	+197	9,172	+4	+61	+52	6,667	+4	-1	-33	3,745	-144	-231	-165
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	2,154	--	-63	-264	4,599	--	+589	+996	3,363	--	-335	-523	3,380	--	-277	-551
Change in Alternative from No Action Alternative:																
NODOS Alternative A	2,191	+37	+105	+134	4,633	+34	+10	-4	3,352	-10	-11	+21	3,266	-115	-243	-114
NODOS Alternative B	2,220	+66	+121	+142	4,614	+15	+5	+7	3,355	-7	-22	-71	3,319	-61	-186	-83
NODOS Alternative C	2,267	+113	+133	+184	4,629	+30	-36	-47	3,354	-9	-23	+12	3,265	-116	-221	-120
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	1,702	--	-87	-250	2,175	--	+48	+119	2,143	--	-148	-222	2,803	--	-303	-416
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,779	+77	+39	+40	2,222	+47	+79	+31	2,067	-76	-49	-48	2,654	-149	-60	-69
NODOS Alternative B	1,771	+69	+67	+54	2,232	+57	+39	+30	2,092	-52	-76	-71	2,648	-155	-78	-123
NODOS Alternative C	1,794	+92	+60	+24	2,179	+4	+53	+6	2,054	-89	-98	-92	2,671	-132	-94	-101
Lower (100%-75% exceedence)																
Change in No Action Alternative:	998	--	-110	-245	1,127	--	-74	-143	1,119	--	-104	-138	1,404	--	-130	-130
Change in Alternative from No Action Alternative:																
NODOS Alternative A	996	-2	+37	+60	1,142	+15	+11	-12	1,205	+86	+71	+39	1,407	+3	-59	-150
NODOS Alternative B	1,092	+94	+77	+75	1,161	+34	+9	+30	1,179	+60	+68	+16	1,311	-93	-60	-143
NODOS Alternative C	1,039	+41	+69	+107	1,147	+20	+13	+3	1,188	+69	+100	-9	1,400	-5	-18	-123

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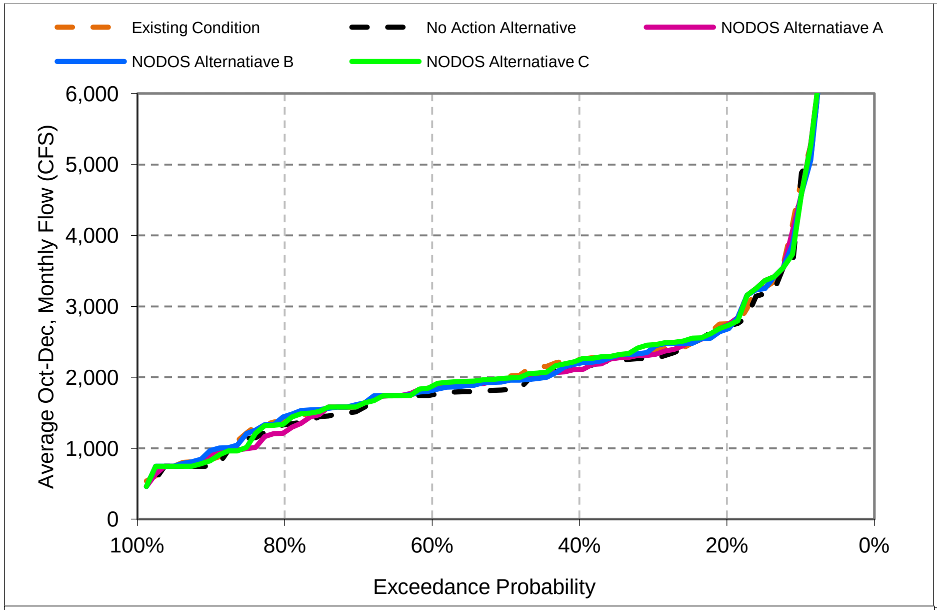
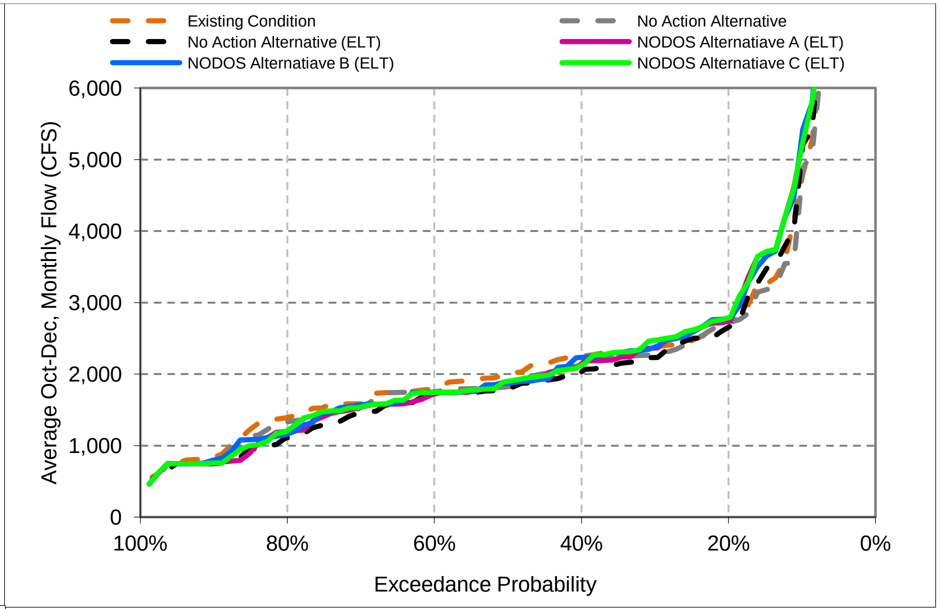




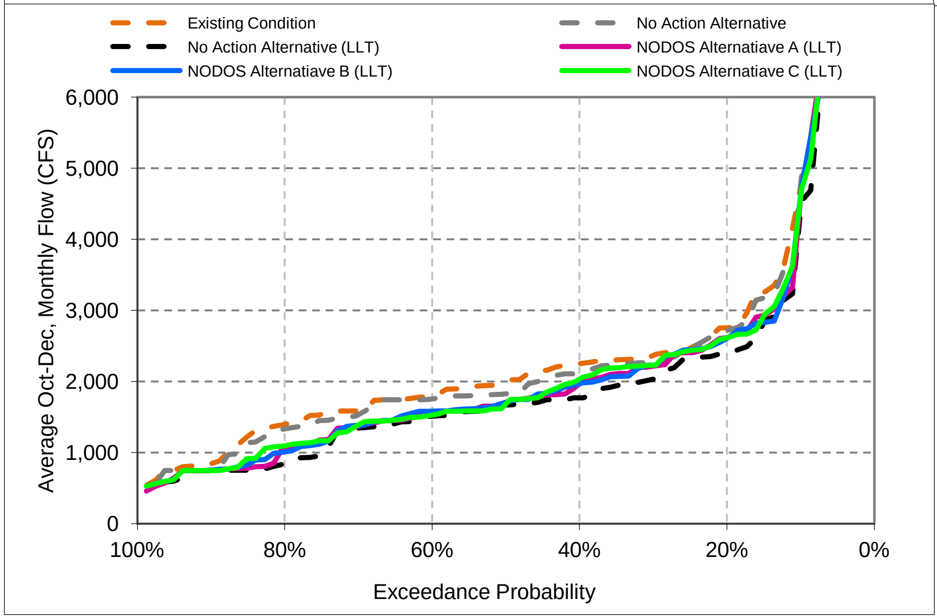


Figure 25B-44-1.
American River at Watt Avenue,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend

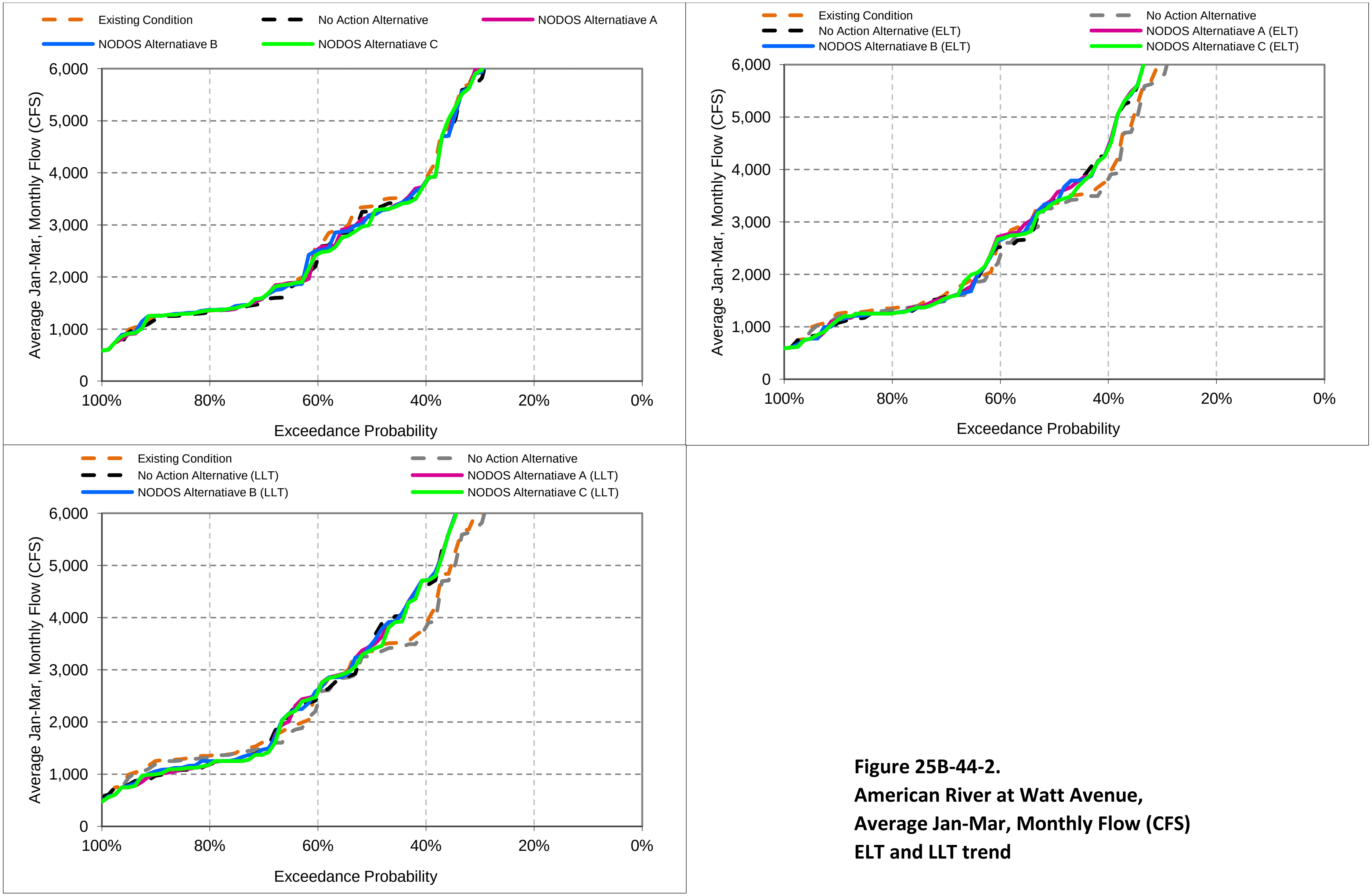


Figure 25B-44-2.
American River at Watt Avenue,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend

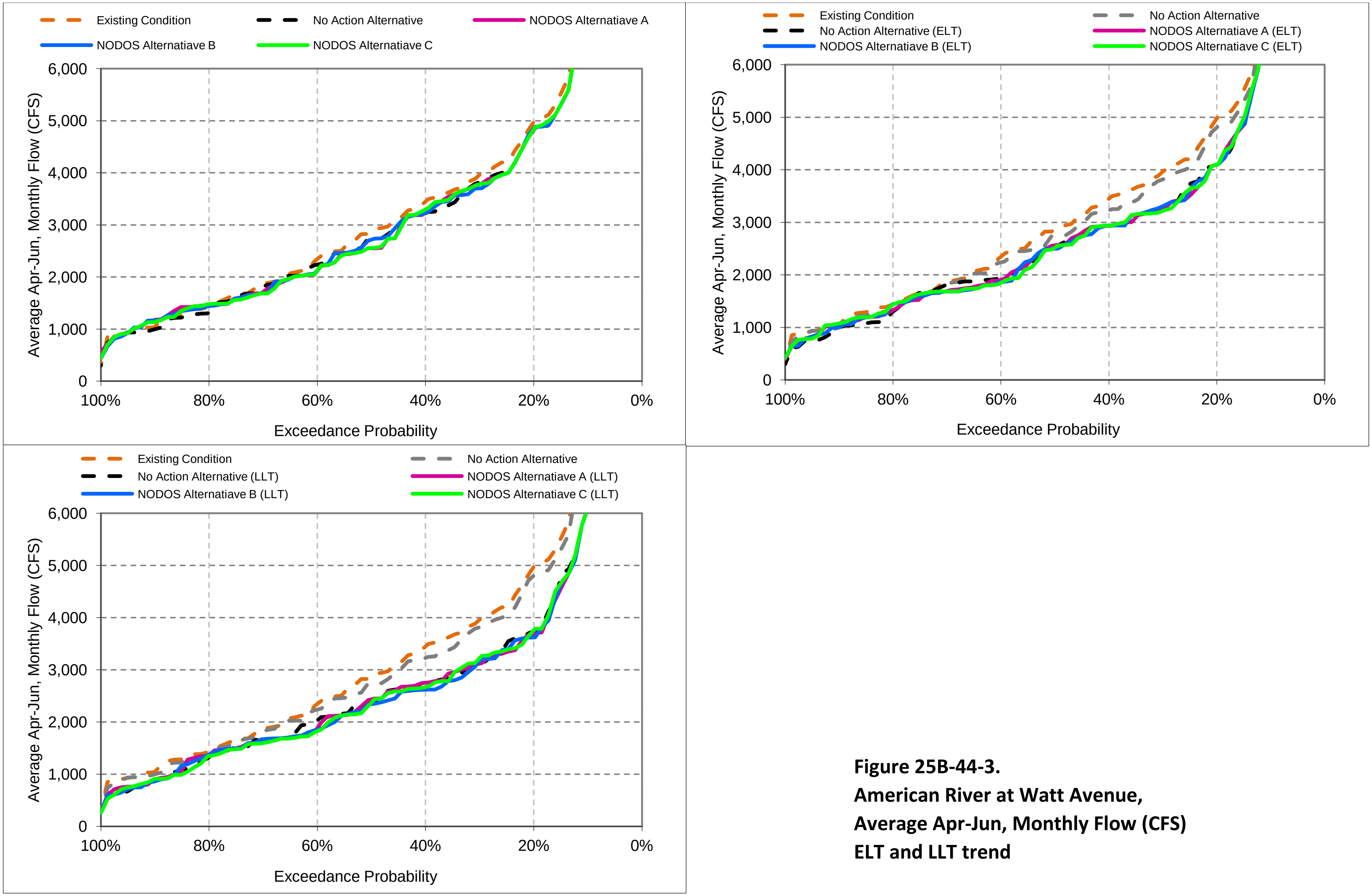
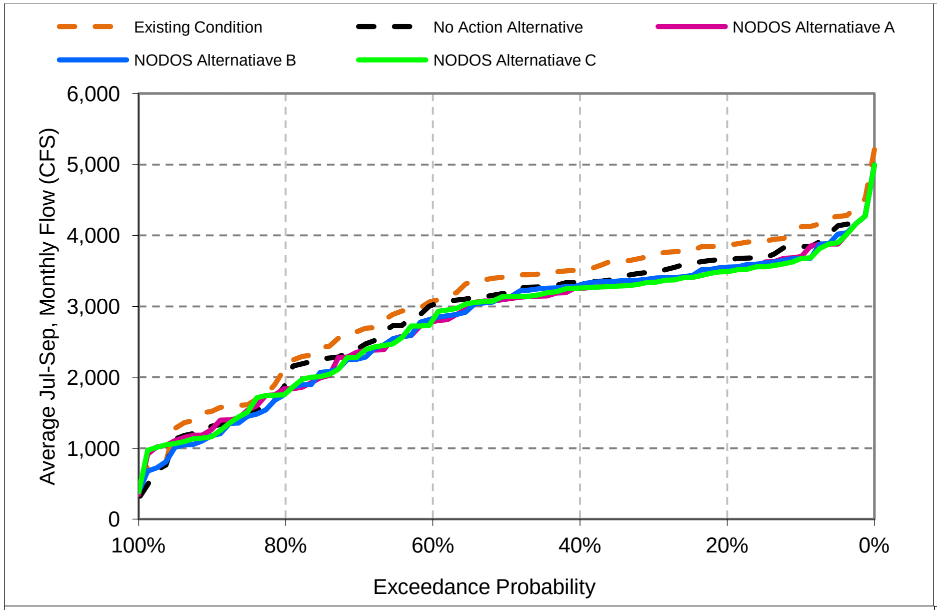
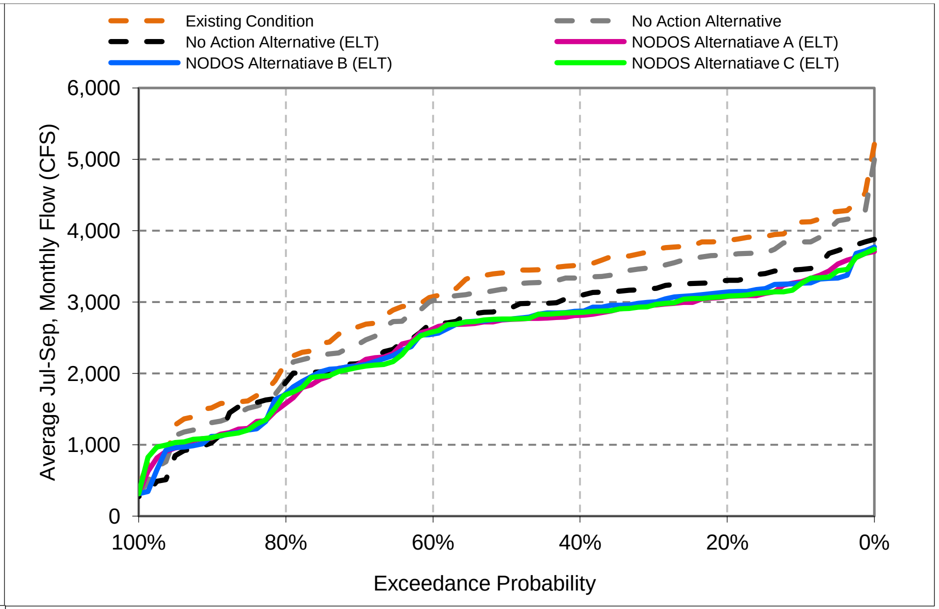


Figure 25B-44-3.
American River at Watt Avenue,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





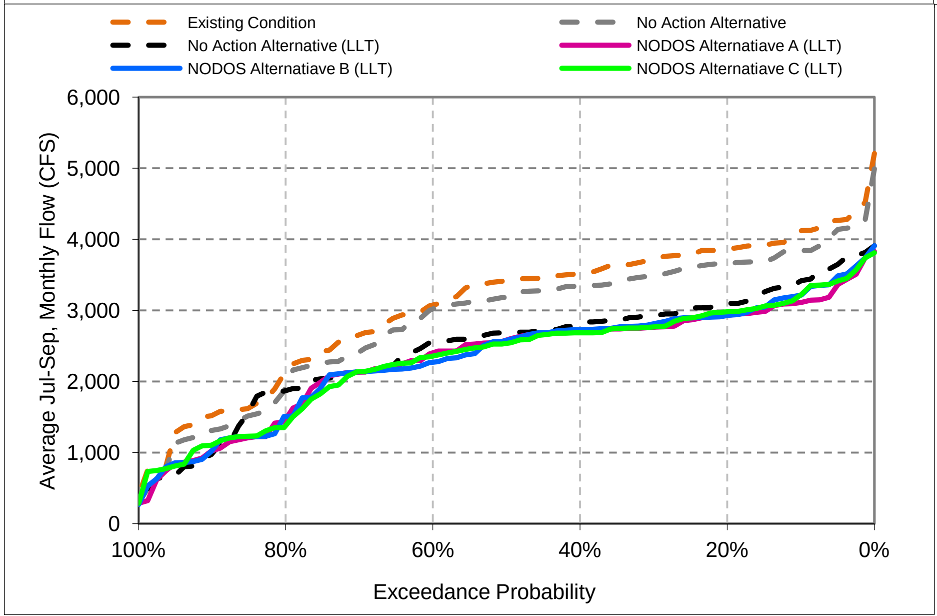


Figure 25B-44-4.
American River at Watt Avenue,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-44-2.
American River at Watt Avenue
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	2,443	--	-306	+258	4,288	--	-428	+1,480	3,336	--	-879	+238	2,864	--	-907	-75
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	2,493	+50	+68	+128	4,317	+28	+18	+46	3,338	+2	-62	-23	2,770	-93	-53	-165
NODOS Alternative B	2,511	+68	+84	+139	4,317	+28	+34	+51	3,337	+2	-45	-29	2,761	-103	-93	-168
NODOS Alternative C	2,516	+73	+58	+155	4,303	+14	+27	+49	3,331	-5	-67	-36	2,765	-99	-48	-184

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	4,800	--	+49	+1,077	9,167	--	-84	+3,422	6,663	--	-2,057	+676	3,890	--	-906	-257
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,884	+84	+79	+163	9,184	+17	+29	+35	6,666	+3	-43	+27	3,773	-117	-96	-207
NODOS Alternative B	4,845	+44	+146	+123	9,176	+8	+55	+15	6,665	+2	-20	+29	3,785	-104	-126	-175
NODOS Alternative C	4,848	+48	+90	+160	9,172	+4	+32	+36	6,667	+4	-30	+11	3,745	-144	-54	-202
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	2,154	--	-462	+136	4,599	--	-608	+1,696	3,363	--	-875	+177	3,380	--	-955	-207
Change in Alternative from No Action Alternative:																
NODOS Alternative A	2,191	+37	+22	+59	4,633	+34	+24	+9	3,352	-10	-47	+10	3,266	-115	-79	-202
NODOS Alternative B	2,220	+66	+69	+59	4,614	+15	+18	-1	3,355	-7	+10	-18	3,319	-61	-189	-144
NODOS Alternative C	2,267	+113	+17	+100	4,629	+30	+38	+3	3,354	-9	-42	+19	3,265	-116	-159	-192
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	1,702	--	-528	-86	2,175	--	-717	+778	2,143	--	-332	+2	2,803	--	-1,081	-47
Change in Alternative from No Action Alternative:																
NODOS Alternative A	1,779	+77	+126	+131	2,222	+47	+21	+56	2,067	-76	-107	-64	2,654	-149	-42	-160
NODOS Alternative B	1,771	+69	+98	+177	2,232	+57	+67	+69	2,092	-52	-109	-38	2,648	-155	-50	-133
NODOS Alternative C	1,794	+92	+100	+179	2,179	+4	+46	+46	2,054	-89	-158	-77	2,671	-132	-40	-218
Lower (100%-75% exceedence)																
Change in No Action Alternative:	998	--	-300	-136	1,127	--	-324	+2	1,119	--	-224	+83	1,404	--	-696	+206
Change in Alternative from No Action Alternative:																
NODOS Alternative A	996	-2	+46	+157	1,142	+15	+1	+81	1,205	+86	-54	-68	1,407	+3	+5	-94
NODOS Alternative B	1,092	+94	+19	+201	1,161	+34	-6	+120	1,179	+60	-61	-90	1,311	-93	-10	-217
NODOS Alternative C	1,039	+41	+25	+183	1,147	+20	-9	+108	1,188	+69	-41	-95	1,400	-5	+57	-126

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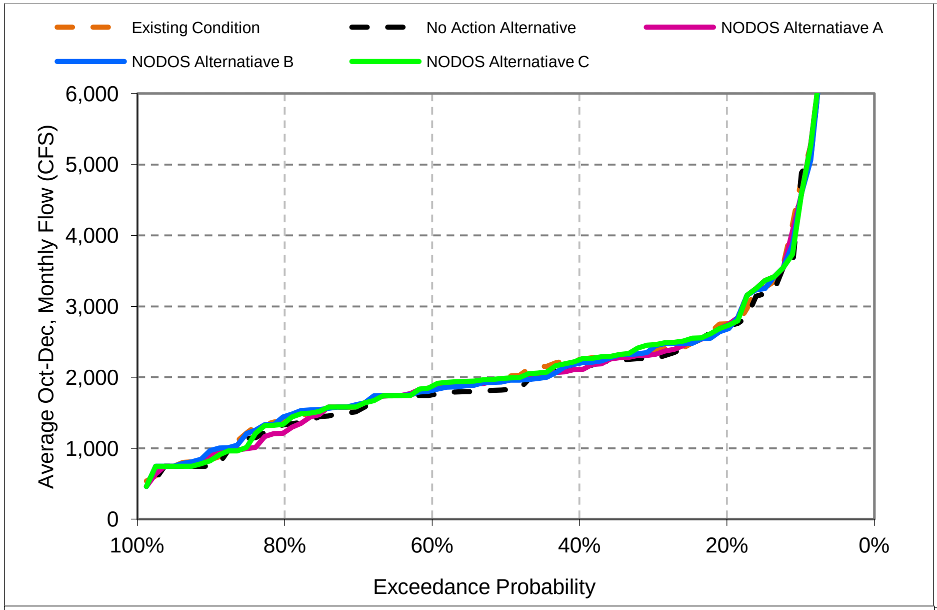
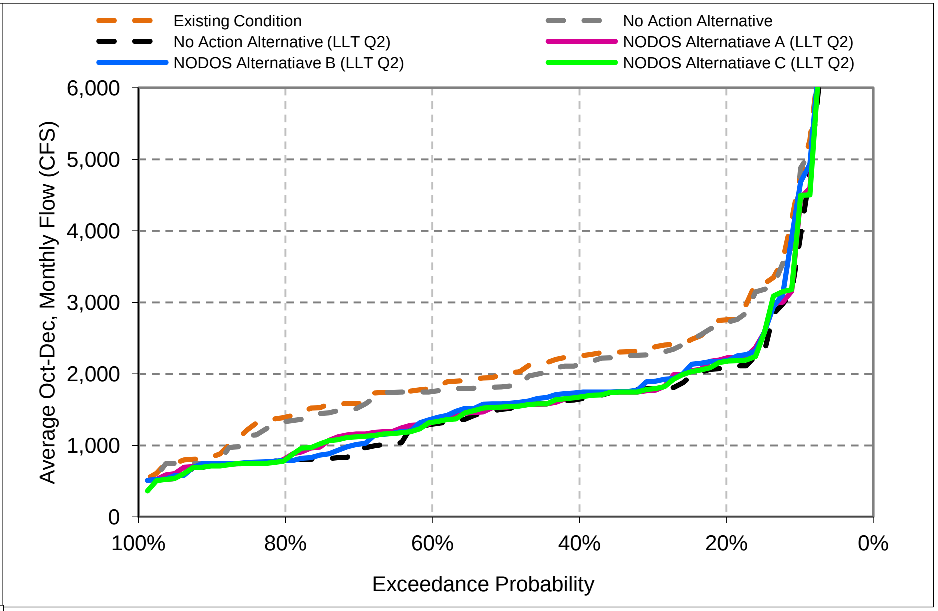




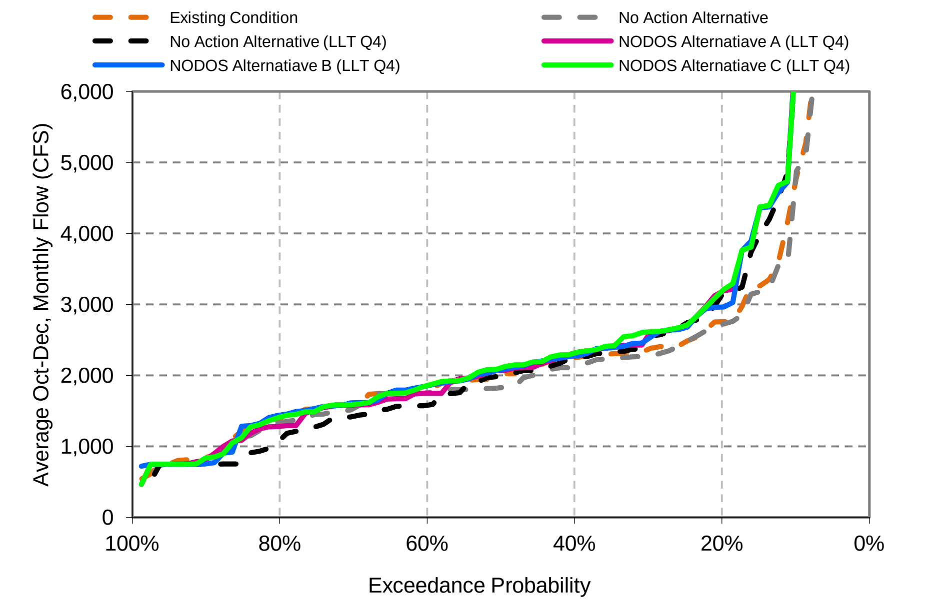


Figure 25B-44-5.
American River at Watt Avenue,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity

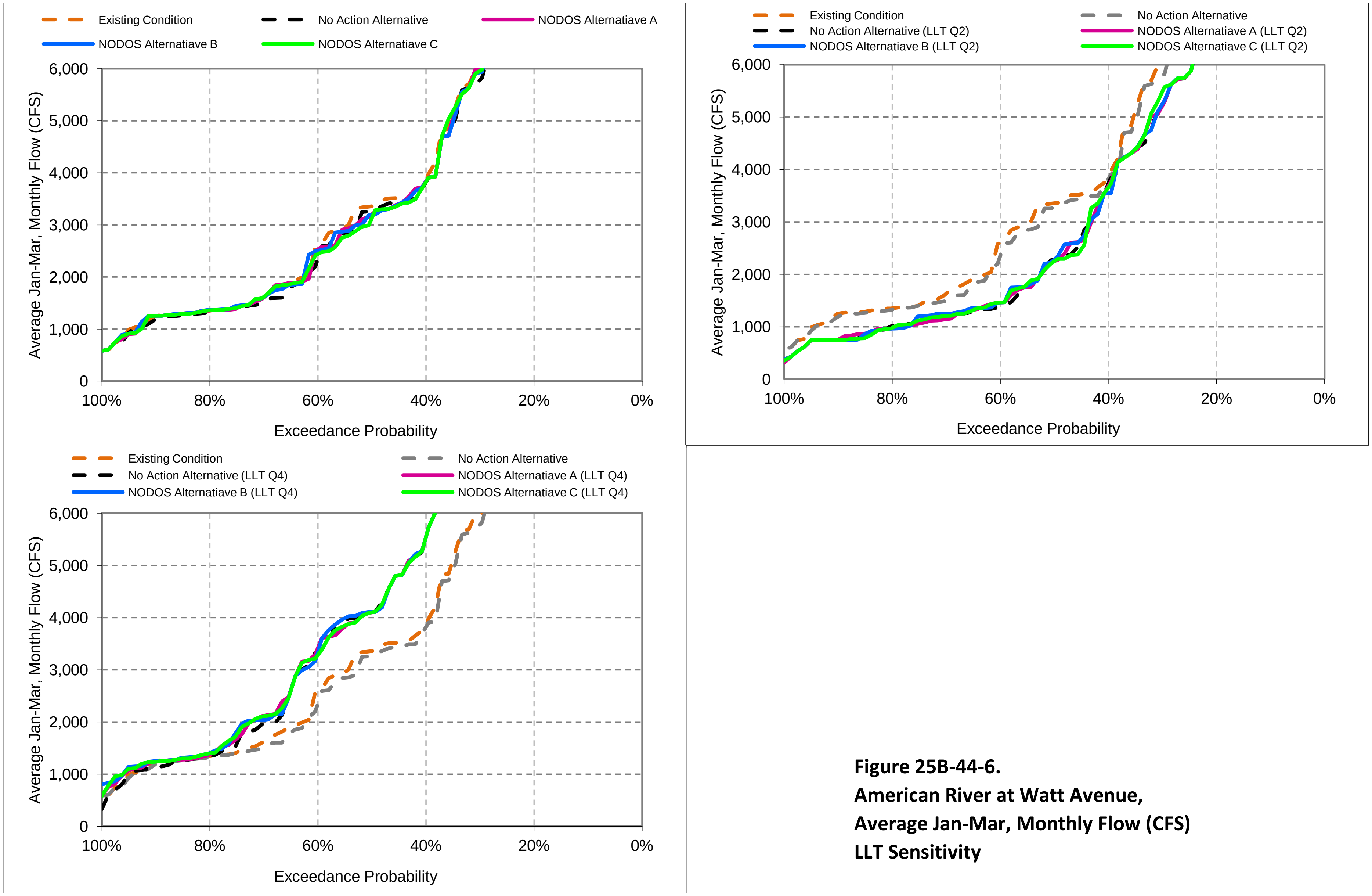


Figure 25B-44-6.
American River at Watt Avenue,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity

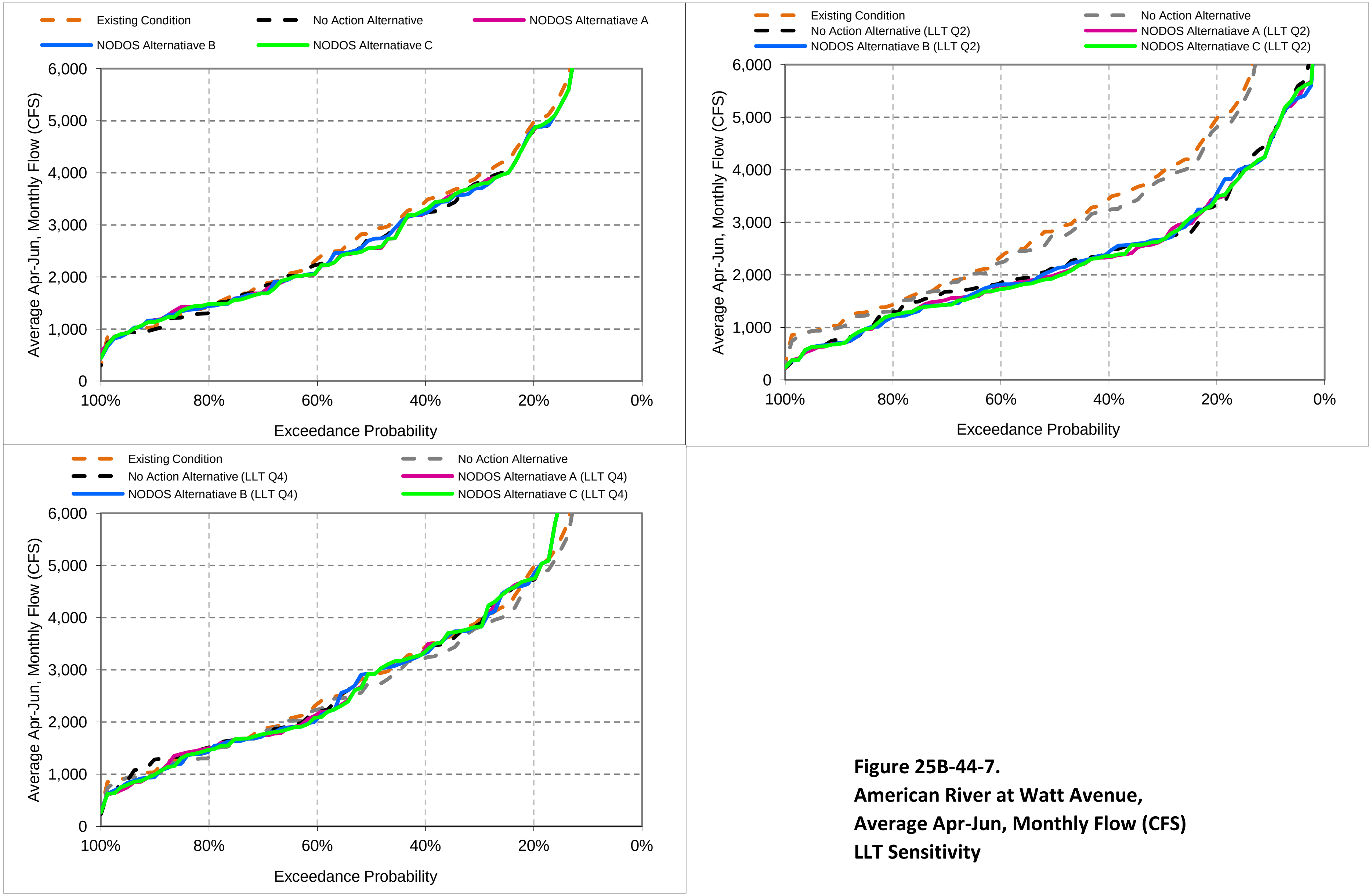
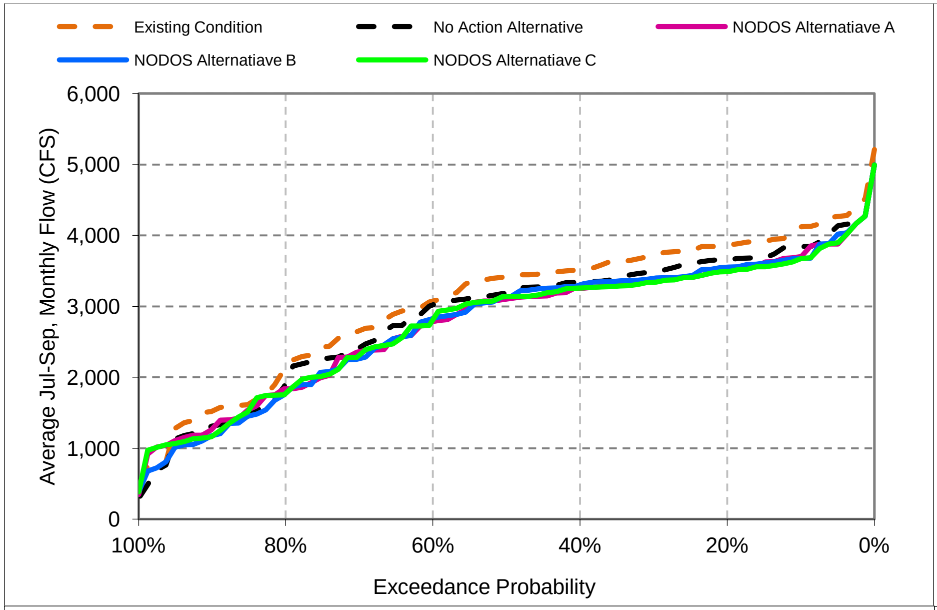
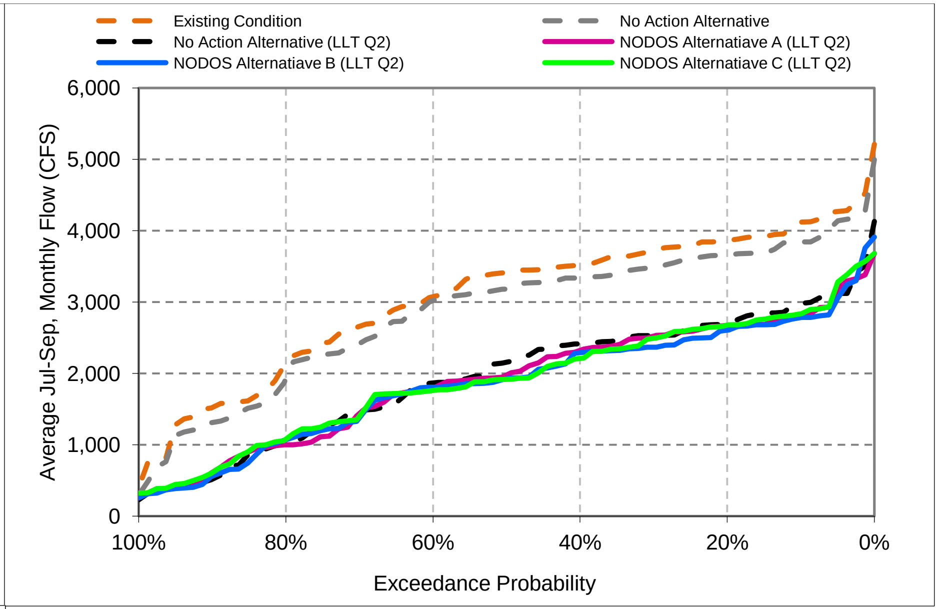


Figure 25B-44-7.
American River at Watt Avenue,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity





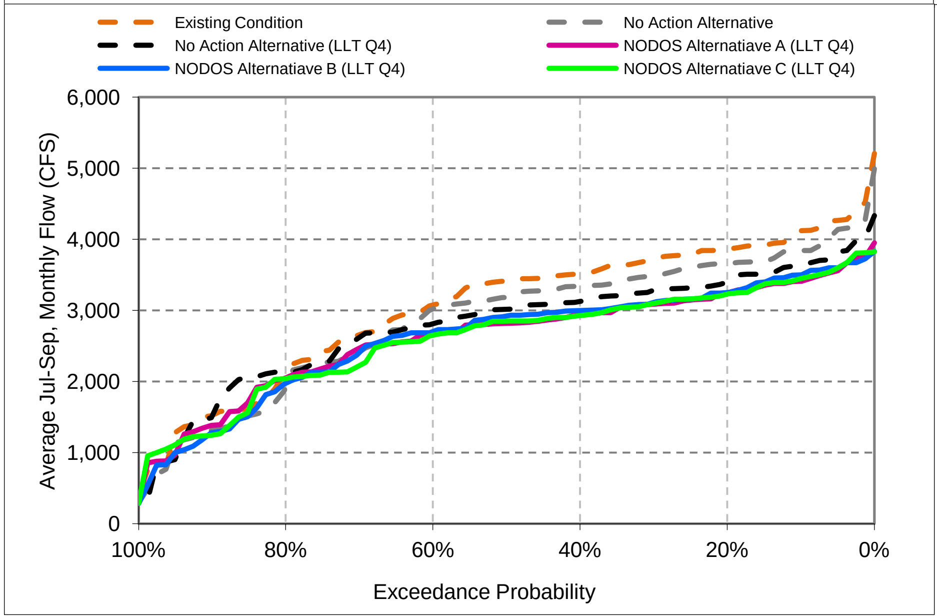


Figure 25B-44-8.
American River at Watt Avenue,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-45-1.
Sacramento River below Hood
Monthly Flow (CFS)
ELT and LLT trend

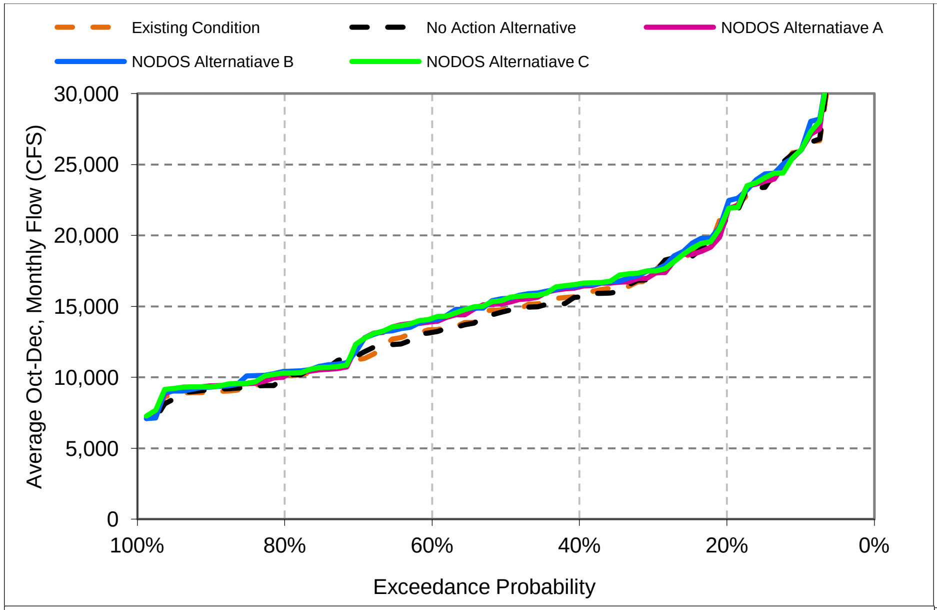
Long Term Average[1]

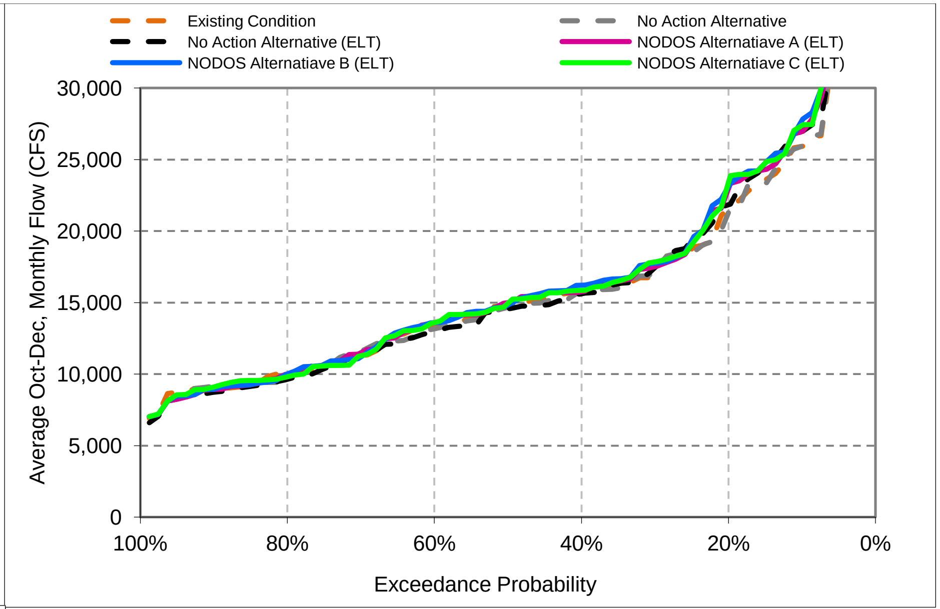
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	16,634	--	+108	-283	33,513	--	+679	+1,143	19,509	--	-908	-1,457	17,293	--	-308	-174
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	16,974	+340	+240	+208	32,461	-1,052	-1,124	-1,096	19,604	+94	+86	-25	18,289	+996	+1,068	+1,188
NODOS Alternative B	17,146	+512	+366	+358	32,573	-940	-965	-875	19,402	-107	-111	-246	18,293	+1,000	+1,001	+1,021
NODOS Alternative C	17,113	+479	+292	+332	32,277	-1,236	-1,263	-1,250	19,549	+39	+64	-58	18,484	+1,191	+1,287	+1,411

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	27,864	--	+887	-630	57,351	--	+1,673	+2,808	36,726	--	-1,947	-4,246	22,127	--	+31	+326
Change in Alternative from No Action Alternative:																
NODOS Alternative A	27,879	+15	+64	+21	56,984	-367	-539	-598	36,810	+84	+15	-211	22,709	+582	+777	+970
NODOS Alternative B	28,181	+317	+365	+484	56,597	-754	-755	-730	36,251	-475	-643	-885	22,831	+705	+897	+1,125
NODOS Alternative C	27,980	+117	+196	+198	56,755	-596	-702	-740	36,687	-39	-149	-359	22,824	+697	+927	+1,108
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	16,148	--	-3	-246	38,753	--	+1,154	+1,618	18,565	--	-1,377	-1,886	18,776	--	+266	+701
Change in Alternative from No Action Alternative:																
NODOS Alternative A	16,594	+446	+295	+423	37,372	-1,381	-1,174	-1,084	18,509	-56	+13	-121	19,683	+907	+820	+916
NODOS Alternative B	16,798	+650	+449	+611	37,546	-1,206	-1,136	-997	18,320	-245	-195	-305	19,729	+953	+706	+776
NODOS Alternative C	16,814	+667	+346	+511	37,127	-1,626	-1,430	-1,412	18,435	-130	-26	-129	19,785	+1,009	+959	+1,020
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	12,774	--	-193	-79	23,100	--	+94	+66	12,463	--	-373	-149	16,451	--	-560	-819
Change in Alternative from No Action Alternative:																
NODOS Alternative A	13,450	+676	+402	+316	21,131	-1,970	-2,149	-1,890	12,677	+215	+133	+106	17,654	+1,202	+1,253	+1,365
NODOS Alternative B	13,523	+749	+405	+274	21,477	-1,624	-1,492	-1,138	12,558	+95	+147	+78	17,600	+1,149	+1,032	+884
NODOS Alternative C	13,571	+796	+332	+376	20,806	-2,295	-2,239	-2,005	12,640	+177	+233	+116	17,975	+1,524	+1,469	+1,648
Lower (100%-75% exceedence)																
Change in No Action Alternative:	9,188	--	-296	-162	14,602	--	-212	+49	9,902	--	+70	+494	11,849	--	-955	-894
Change in Alternative from No Action Alternative:																
NODOS Alternative A	9,427	+239	+206	+84	14,052	-550	-686	-850	10,036	+133	+182	+128	13,148	+1,299	+1,417	+1,495
NODOS Alternative B	9,529	+342	+246	+58	14,382	-220	-509	-653	10,103	+200	+255	+143	13,048	+1,199	+1,356	+1,279
NODOS Alternative C	9,543	+356	+297	+249	14,106	-496	-735	-887	10,051	+149	+203	+144	13,389	+1,540	+1,785	+1,859

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





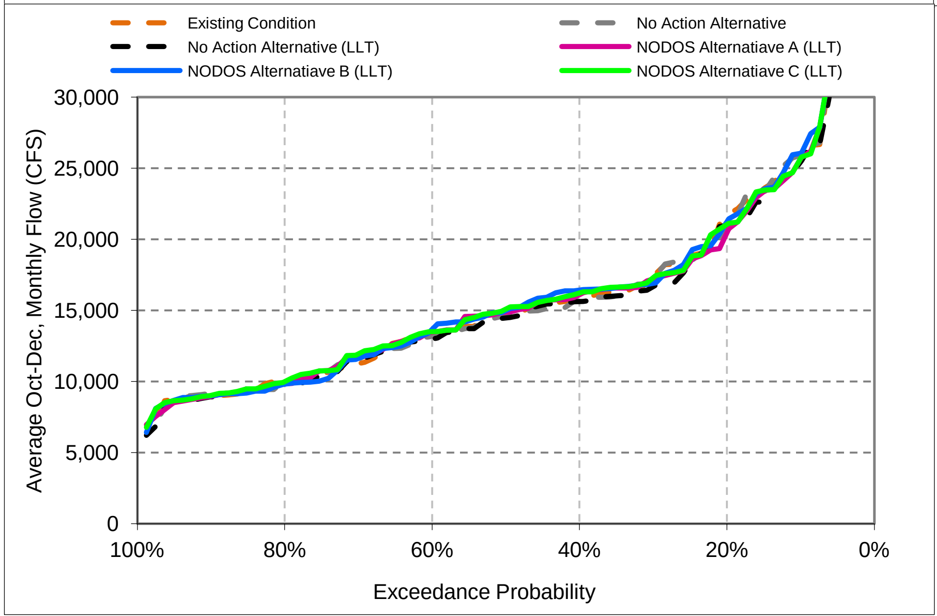
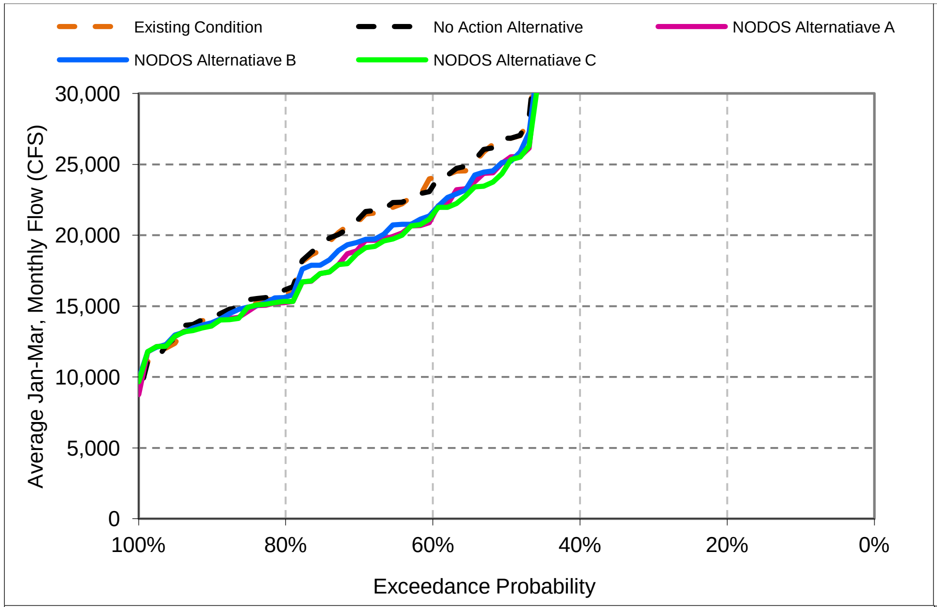
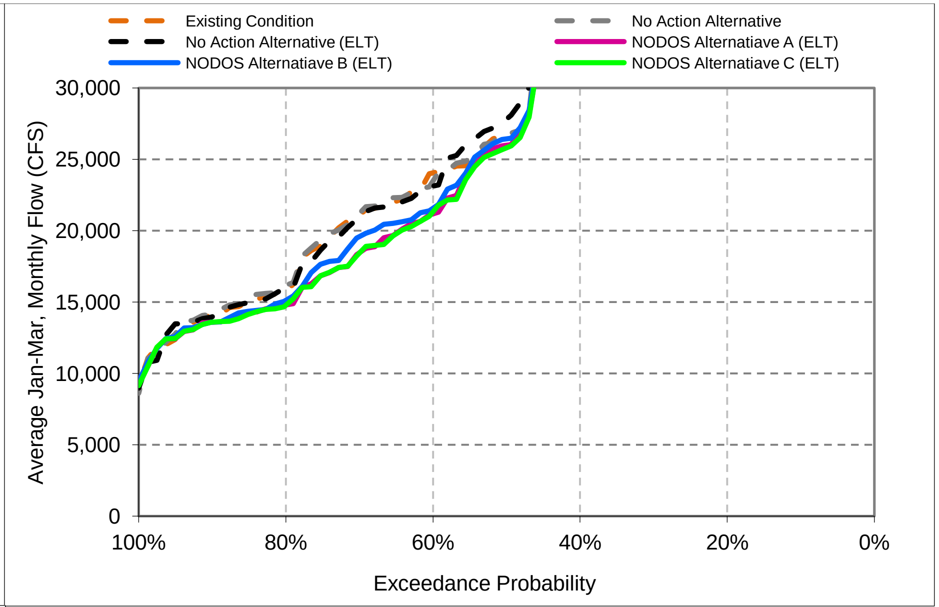


Figure 25B-45-1.
Sacramento River below Hood,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend





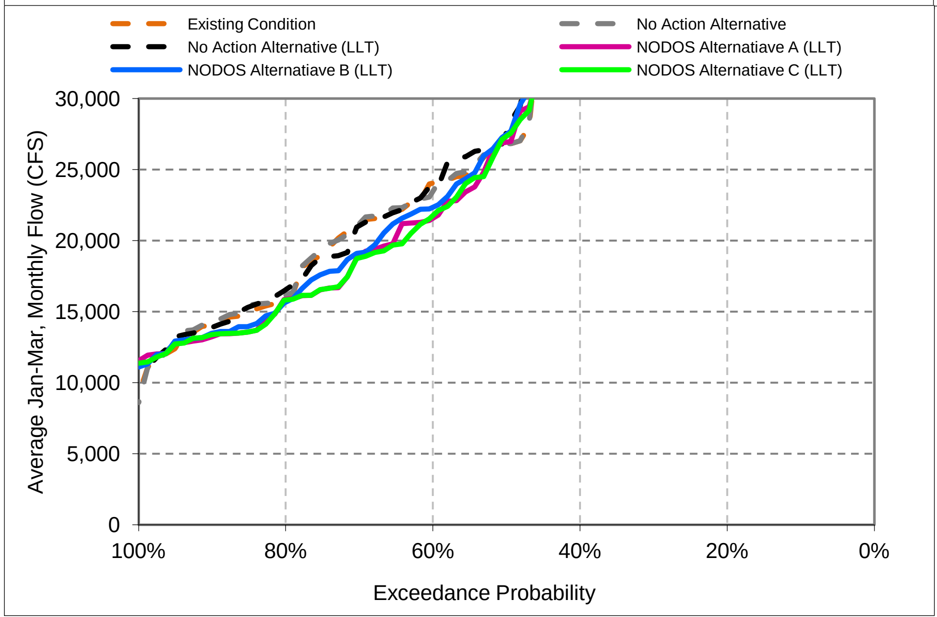


Figure 25B-45-2.
Sacramento River below Hood,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend

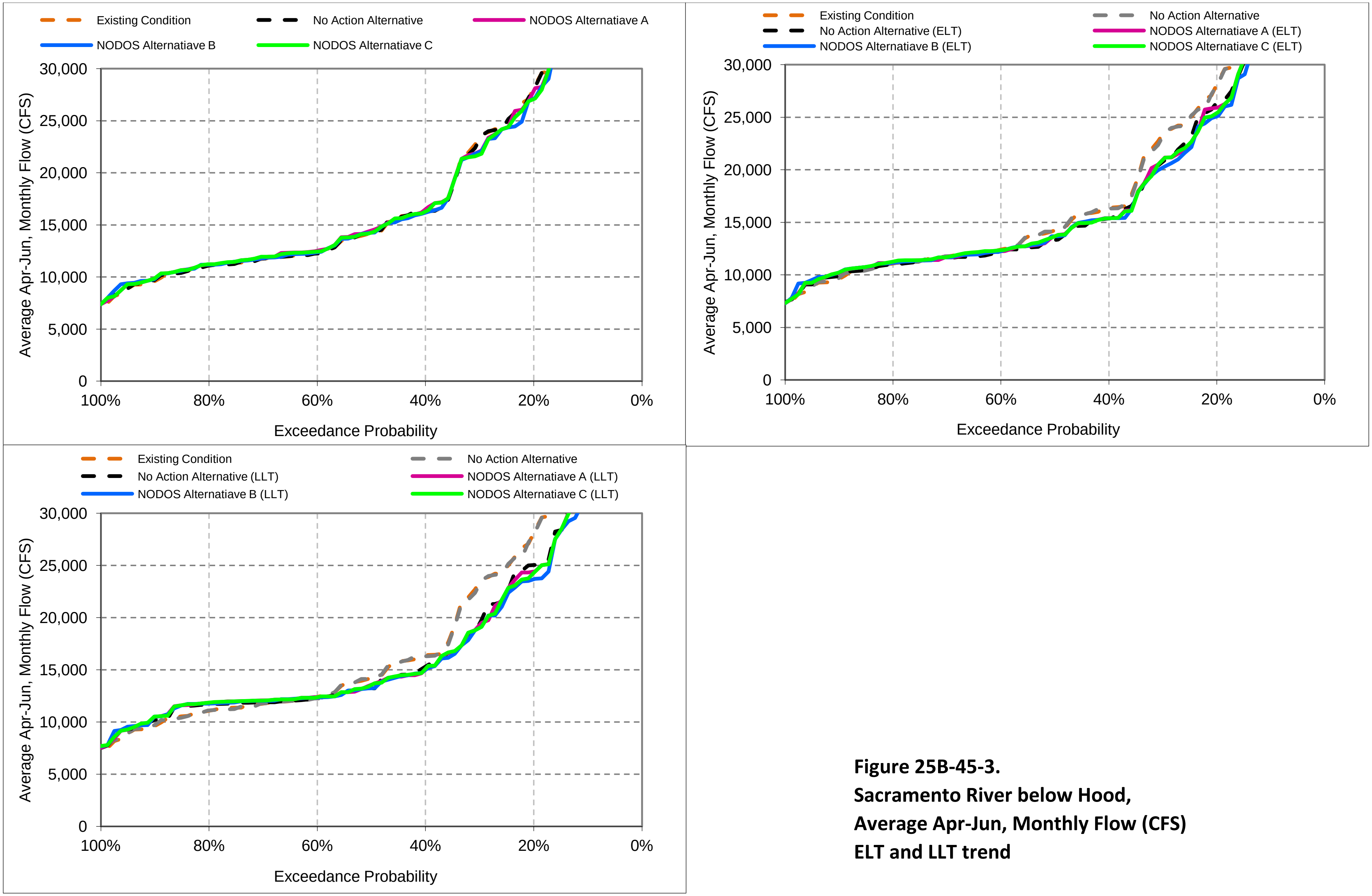


Figure 25B-45-3.
Sacramento River below Hood,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend

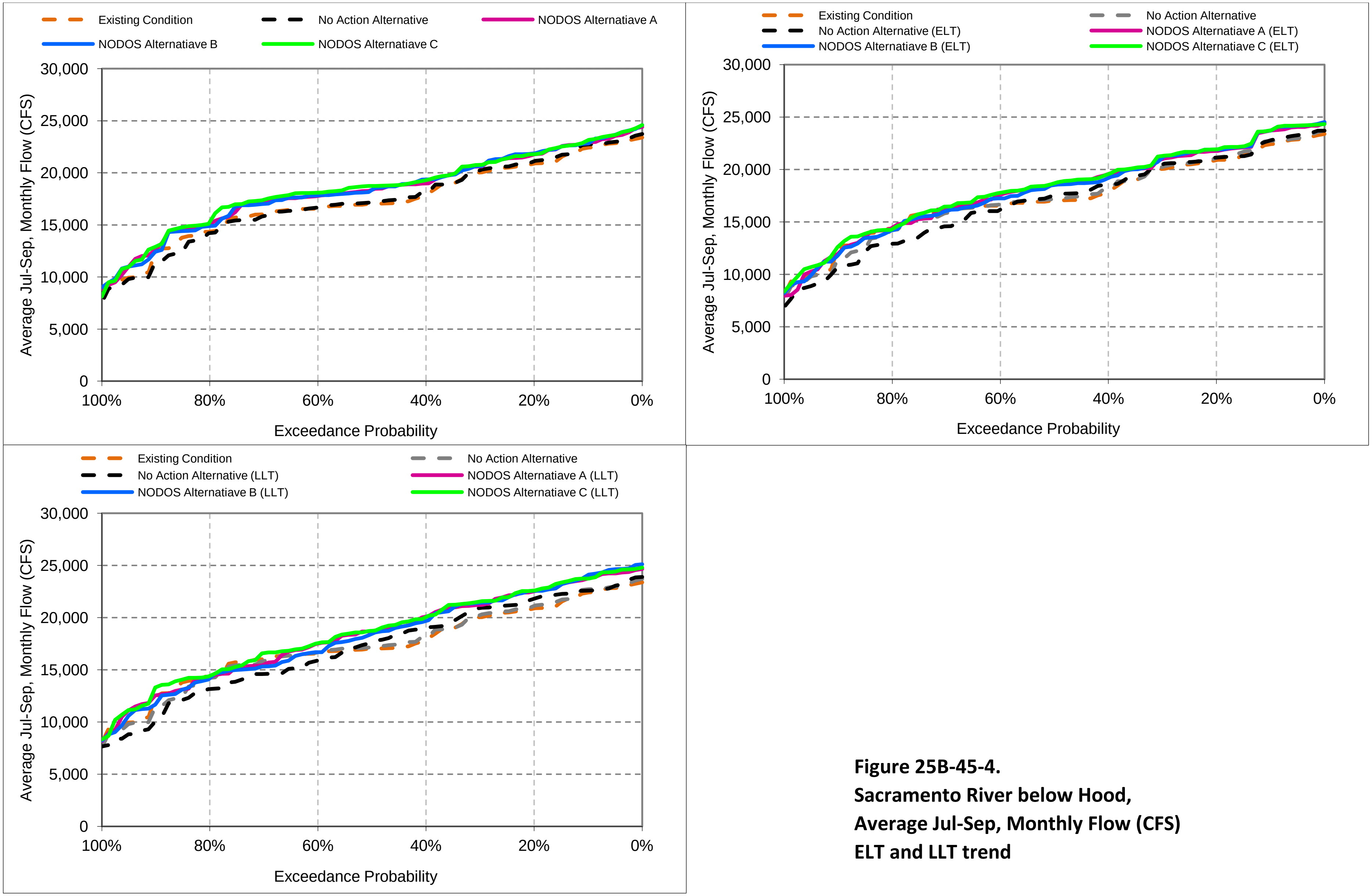


Figure 25B-45-4.
Sacramento River below Hood,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-45-2.
Sacramento River below Hood
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

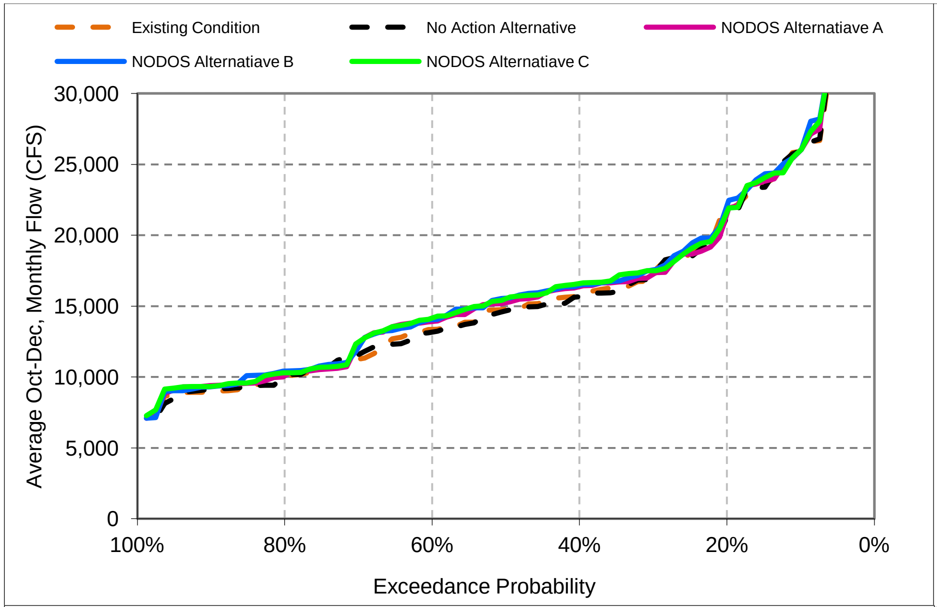
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	16,634	--	-2,043	+1,716	33,513	--	-2,959	+4,182	19,509	--	-3,418	+1,684	17,293	--	-2,608	+1,668
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	16,974	+340	+173	+314	32,461	-1,052	-1,229	-1,042	19,604	+94	+26	+16	18,289	+996	+1,041	+1,073
NODOS Alternative B	17,146	+512	+229	+502	32,573	-940	-907	-893	19,402	-107	-215	-267	18,293	+1,000	+854	+997
NODOS Alternative C	17,113	+479	+175	+454	32,277	-1,236	-1,378	-1,175	19,549	+39	-30	-63	18,484	+1,191	+1,285	+1,259

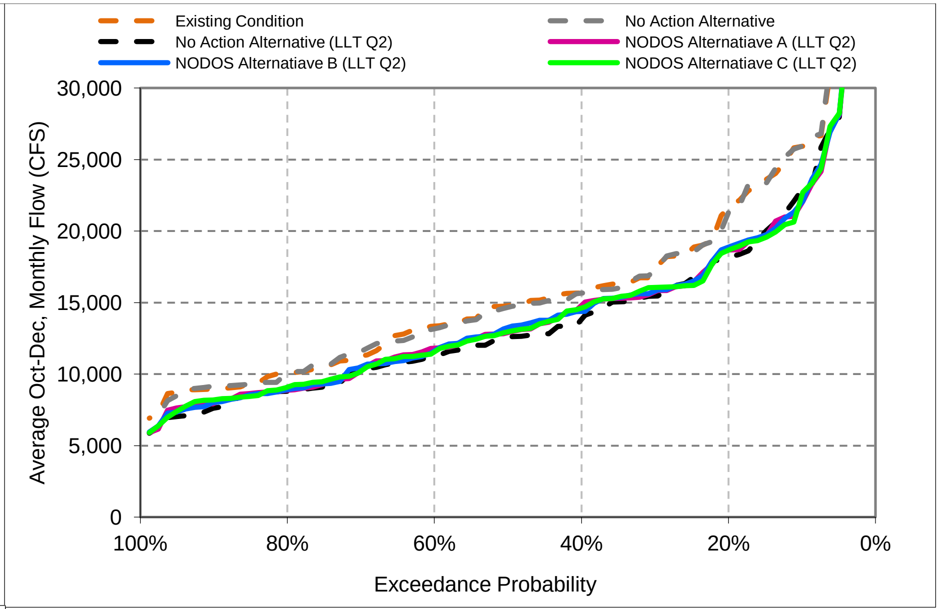
Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	27,864	--	-3,331	+3,300	57,351	--	-3,055	+6,286	36,726	--	-8,866	+3,078	22,127	--	-776	+1,260
Change in Alternative from No Action Alternative:																
NODOS Alternative A	27,879	+15	-292	+38	56,984	-367	-744	-408	36,810	+84	-94	-198	22,709	+582	+737	+650
NODOS Alternative B	28,181	+317	-81	+244	56,597	-754	-792	-490	36,251	-475	-790	-763	22,831	+705	+596	+702
NODOS Alternative C	27,980	+117	-373	+139	56,755	-596	-1,175	-473	36,687	-39	-256	-320	22,824	+697	+950	+763
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	16,148	--	-1,813	+1,358	38,753	--	-5,231	+5,846	18,565	--	-3,669	+1,670	18,776	--	-2,353	+2,054
Change in Alternative from No Action Alternative:																
NODOS Alternative A	16,594	+446	+438	+326	37,372	-1,381	-1,665	-856	18,509	-56	-49	-156	19,683	+907	+791	+745
NODOS Alternative B	16,798	+650	+511	+549	37,546	-1,206	-1,225	-1,052	18,320	-245	-318	-573	19,729	+953	+347	+846
NODOS Alternative C	16,814	+667	+508	+548	37,127	-1,626	-1,725	-1,155	18,435	-130	-118	-217	19,785	+1,009	+1,059	+895
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	12,774	--	-1,730	+1,043	23,100	--	-2,387	+3,410	12,463	--	-668	+928	16,451	--	-4,107	+1,727
Change in Alternative from No Action Alternative:																
NODOS Alternative A	13,450	+676	+344	+713	21,131	-1,970	-2,029	-1,811	12,677	+215	+28	+153	17,654	+1,202	+1,213	+1,193
NODOS Alternative B	13,523	+749	+317	+955	21,477	-1,624	-1,309	-1,364	12,558	+95	-1	-2	17,600	+1,149	+1,242	+1,071
NODOS Alternative C	13,571	+796	+290	+944	20,806	-2,295	-2,097	-2,001	12,640	+177	+4	+71	17,975	+1,524	+1,438	+1,309
Lower (100%-75% exceedence)																
Change in No Action Alternative:	9,188	--	-1,234	+1,083	14,602	--	-1,245	+1,229	9,902	--	-351	+1,022	11,849	--	-3,254	+1,650
Change in Alternative from No Action Alternative:																
NODOS Alternative A	9,427	+239	+227	+196	14,052	-550	-536	-1,121	10,036	+133	+213	+264	13,148	+1,299	+1,418	+1,692
NODOS Alternative B	9,529	+342	+183	+274	14,382	-220	-334	-695	10,103	+200	+254	+268	13,048	+1,199	+1,223	+1,363
NODOS Alternative C	9,543	+356	+301	+200	14,106	-496	-563	-1,107	10,051	+149	+247	+214	13,389	+1,540	+1,691	+2,056

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

This document is not released as a draft EIR pursuant to CEQA Guidelines § 15087. As such, DWR is not soliciting and will not respond to comments submitted on this document, although any comments received will be retained and may be considered during preparation of a future draft EIR.





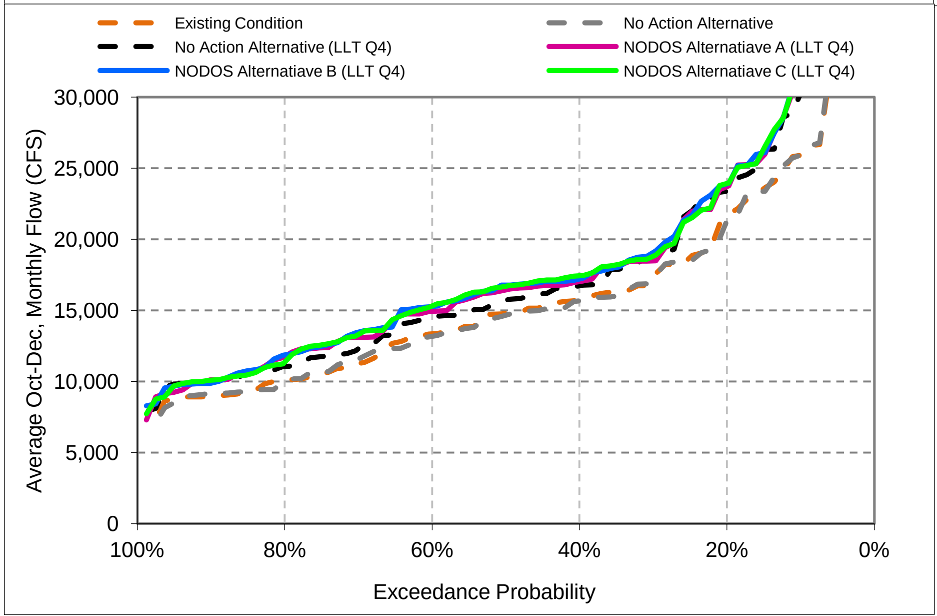
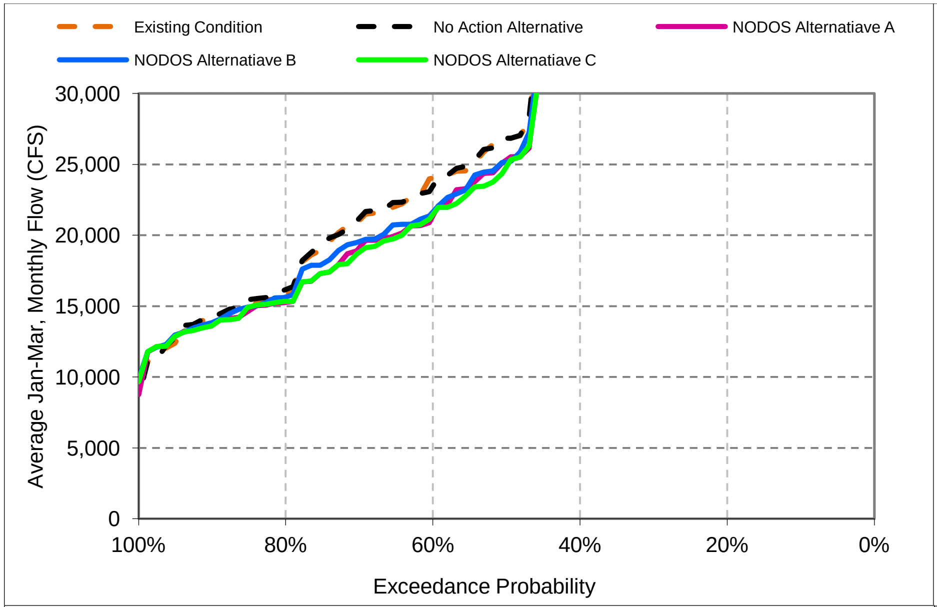
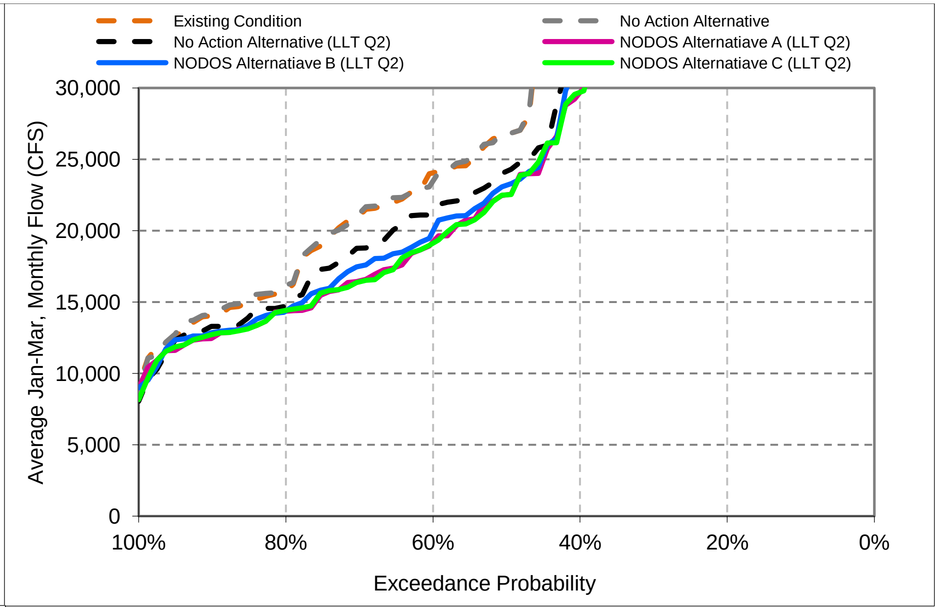


Figure 25B-45-5.
Sacramento River below Hood,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





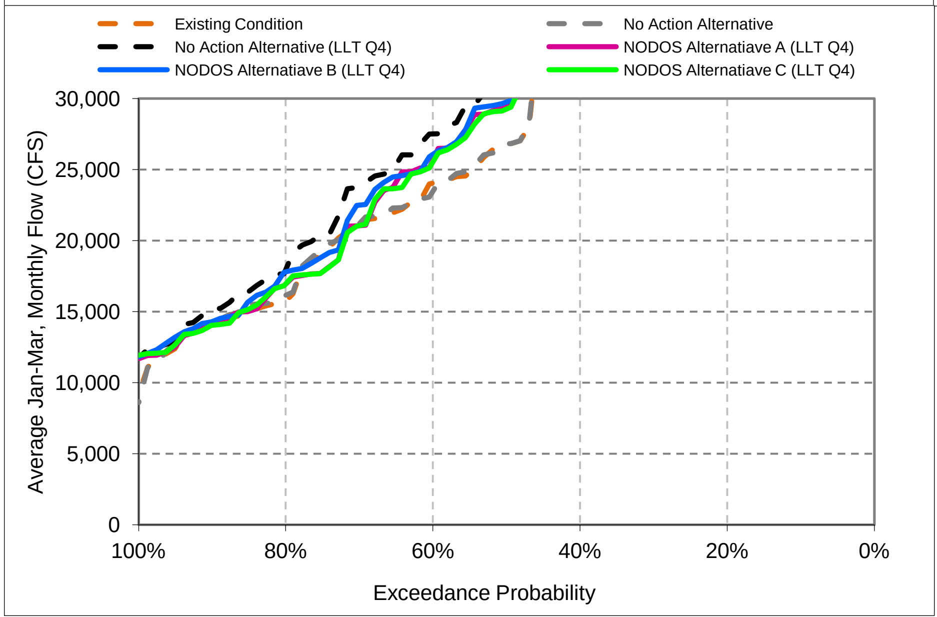


Figure 25B-45-6.
Sacramento River below Hood,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity

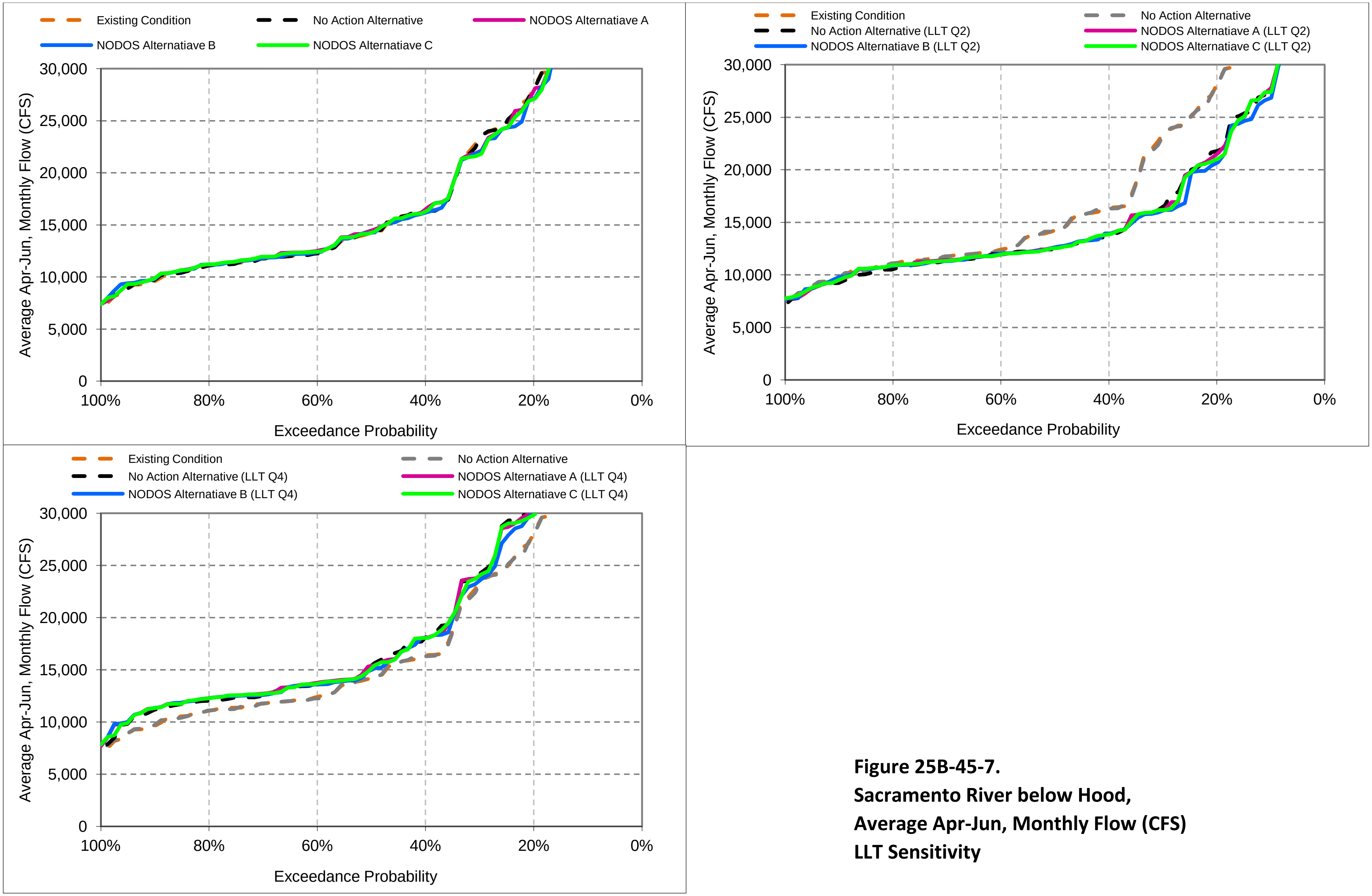


Figure 25B-45-7.
Sacramento River below Hood,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity

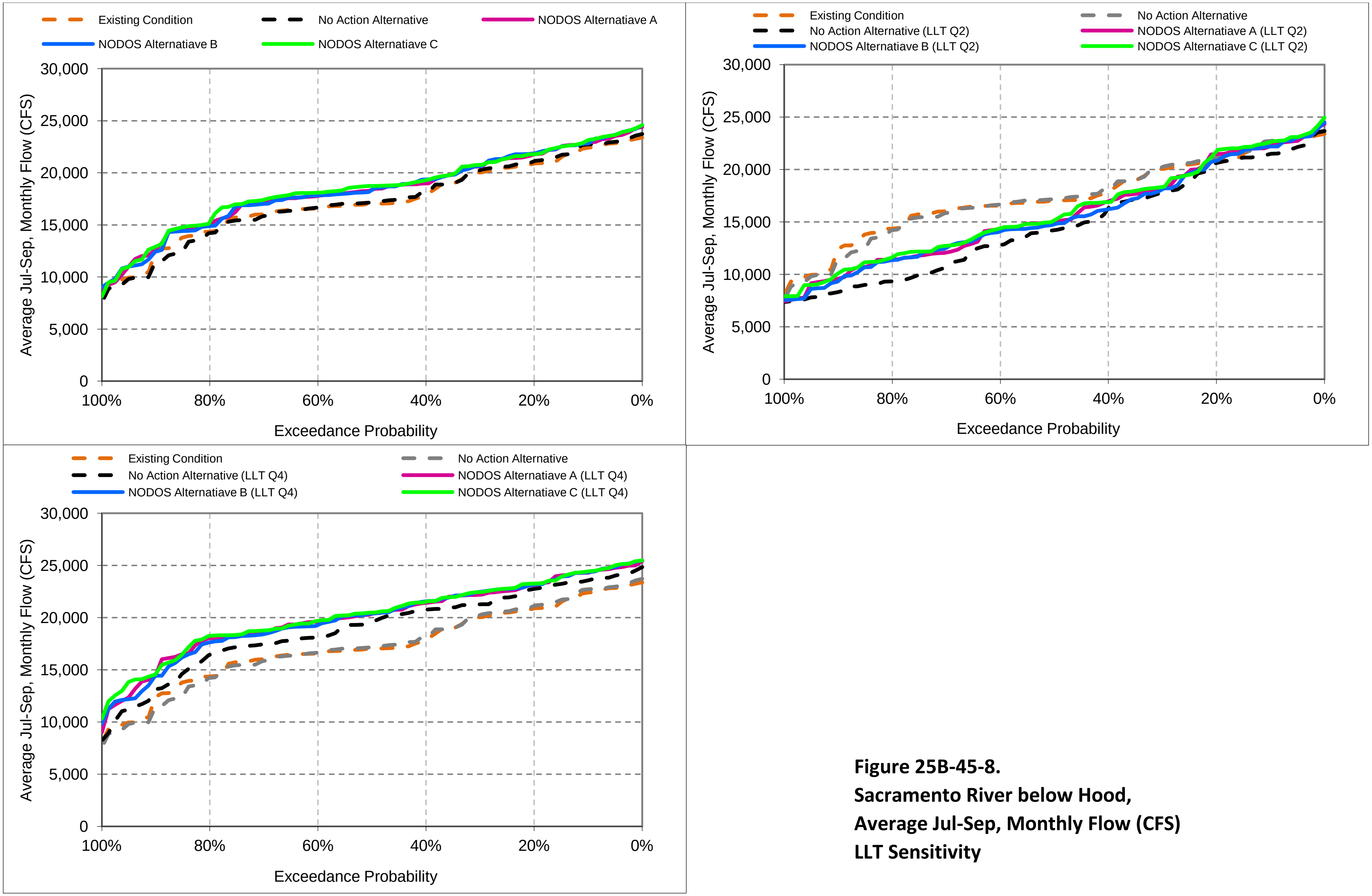


Figure 25B-45-8.
Sacramento River below Hood,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-46-1.
Yolo Bypass
Monthly Flow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	1,296	--	+338	+40	10,174	--	+1,430	+2,063	956	--	+7	-17	77	--	+2	+8
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	1,221	-75	-50	-52	9,699	-475	-521	-491	944	-12	-11	-10	84	+7	+8	+14
NODOS Alternative B	1,240	-56	-54	+2	9,658	-516	-446	-477	886	-70	-77	-78	84	+7	+6	+13
NODOS Alternative C	1,198	-98	-85	-92	9,610	-564	-591	-611	932	-24	-26	-33	84	+7	+8	+13

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	4,664	--	+1,288	+170	32,707	--	+4,877	+6,957	3,379	--	+25	-72	146	--	+6	+22
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,414	-249	-155	-193	31,760	-947	-1,090	-954	3,350	-29	-25	-23	172	+26	+28	+43
NODOS Alternative B	4,487	-176	-160	+16	31,463	-1,243	-1,039	-1,124	3,144	-234	-241	-245	172	+25	+19	+42
NODOS Alternative C	4,327	-337	-288	-348	31,485	-1,222	-1,317	-1,339	3,323	-56	-65	-91	172	+26	+27	+42
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	284	--	+14	-16	6,094	--	+733	+1,194	222	--	+2	+4	54	--	+1	+9
Change in Alternative from No Action Alternative:																
NODOS Alternative A	248	-36	-35	-4	5,500	-594	-613	-662	206	-15	-16	-15	57	+3	+3	+10
NODOS Alternative B	250	-33	-47	-6	5,549	-546	-502	-545	185	-37	-61	-61	57	+3	+4	+9
NODOS Alternative C	248	-36	-37	-5	5,434	-661	-660	-736	186	-36	-36	-36	57	+3	+3	+8
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	51	--	+1	-1	1,107	--	+33	-20	81	--	+0	+1	54	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	46	-5	-3	-3	797	-310	-345	-311	80	-1	-1	-1	54	+0	+0	+0
NODOS Alternative B	46	-5	-3	-3	895	-212	-211	-203	80	-1	-1	-1	54	+0	+0	+0
NODOS Alternative C	46	-5	-4	-3	796	-311	-345	-324	80	-1	-1	-1	54	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	17	--	+0	-0	162	--	-22	-19	65	--	+0	+0	51	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	16	-1	-1	-1	117	-45	-33	-37	64	-1	-1	-1	51	+0	+0	+0
NODOS Alternative B	16	-1	-0	-1	113	-49	-24	-25	64	-1	-1	-1	51	+0	+0	+0
NODOS Alternative C	16	-1	-1	-1	107	-55	-34	-36	64	-1	-1	-1	51	+0	+0	+0

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
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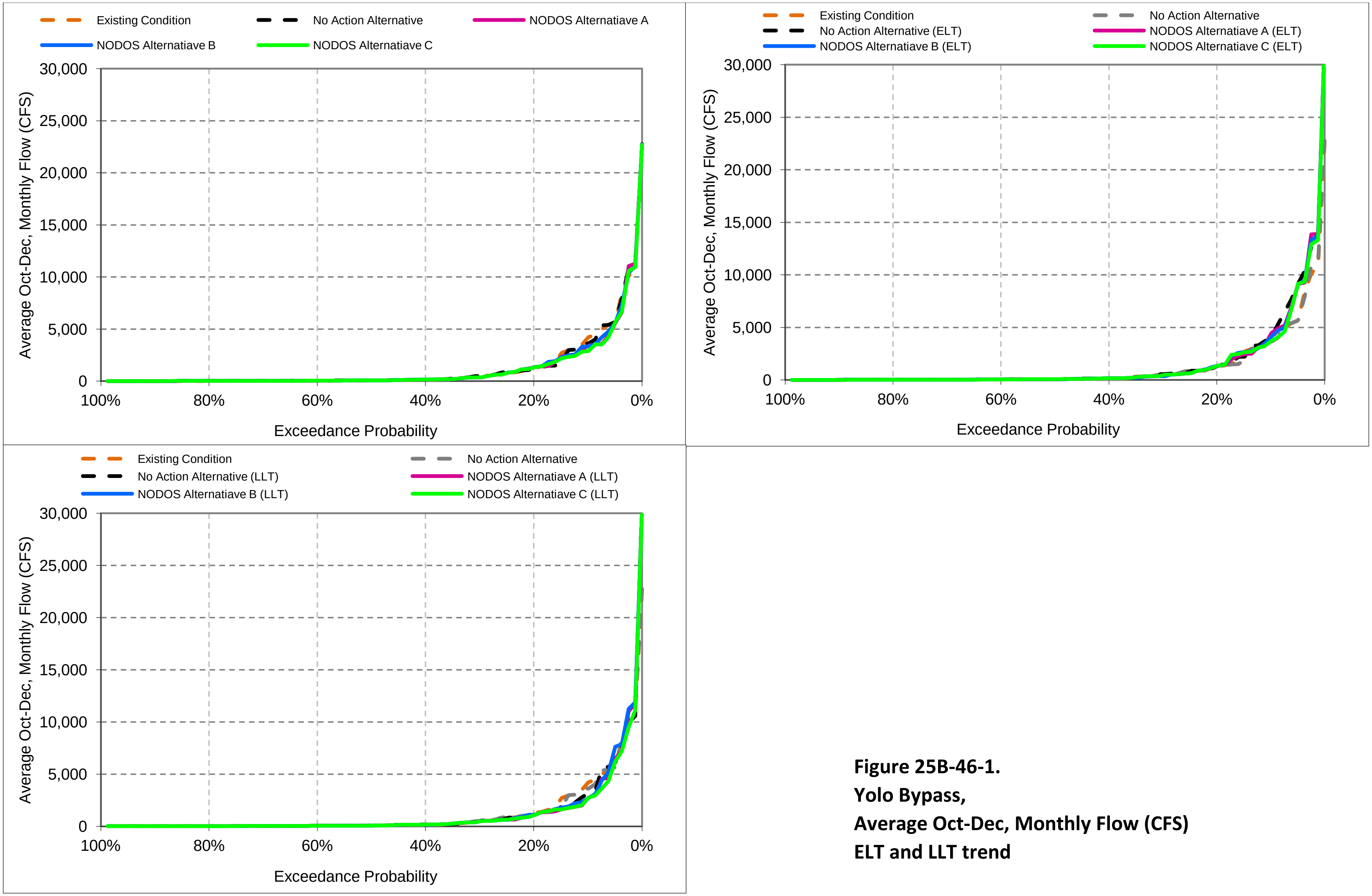


Figure 25B-46-1.
Yolo Bypass,
Average Oct-Dec, Monthly Flow (CFS)
ELT and LLT trend

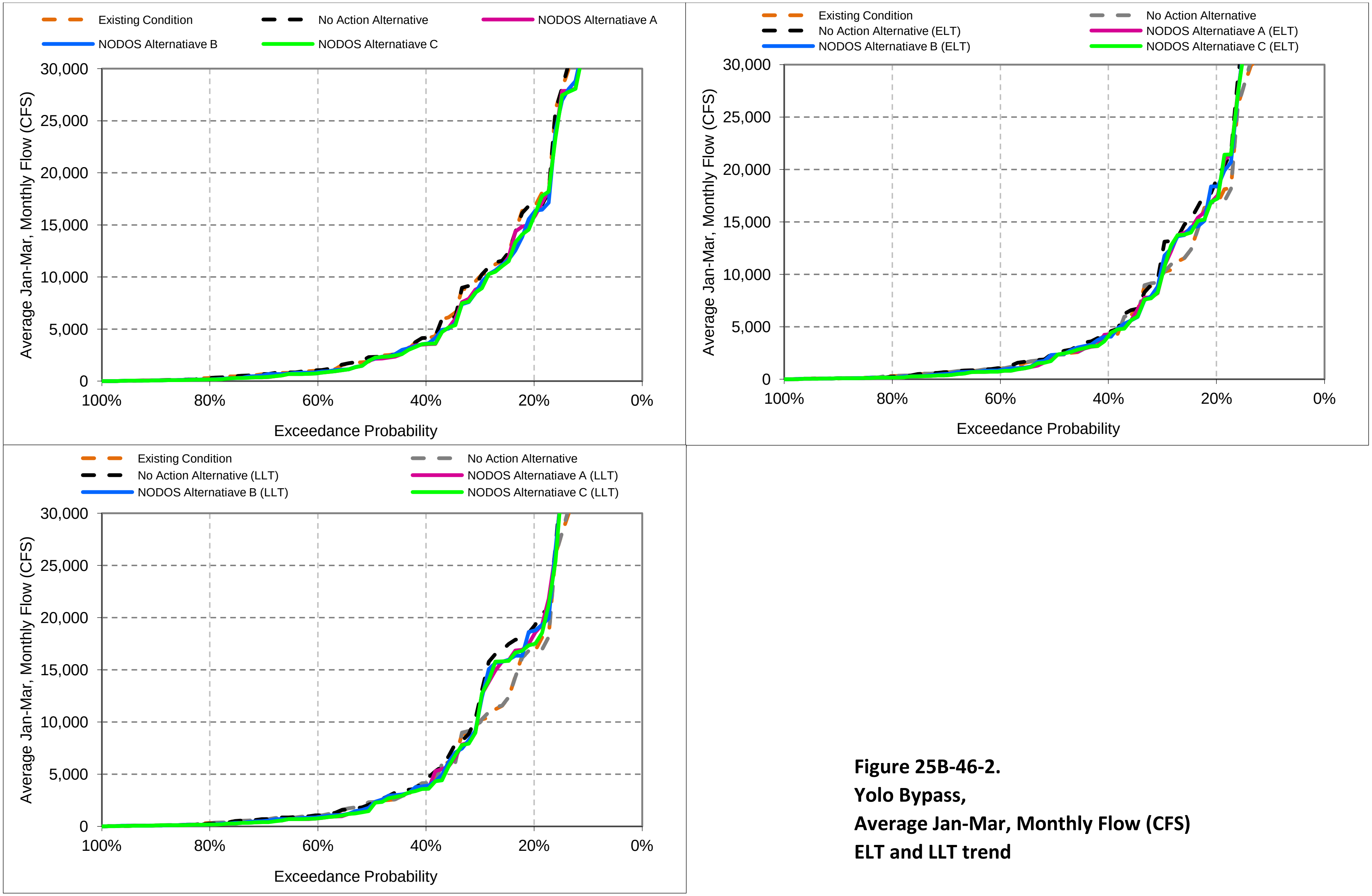
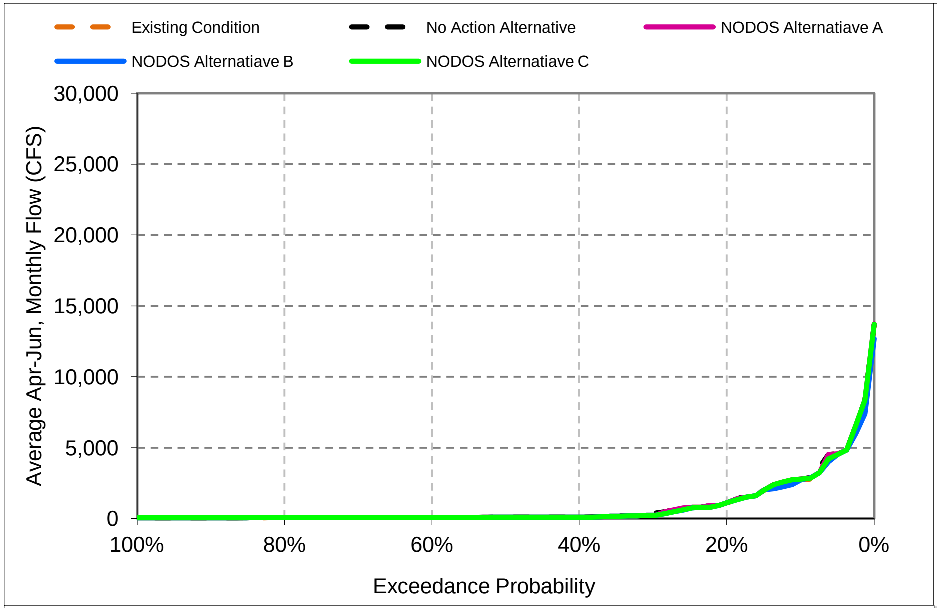
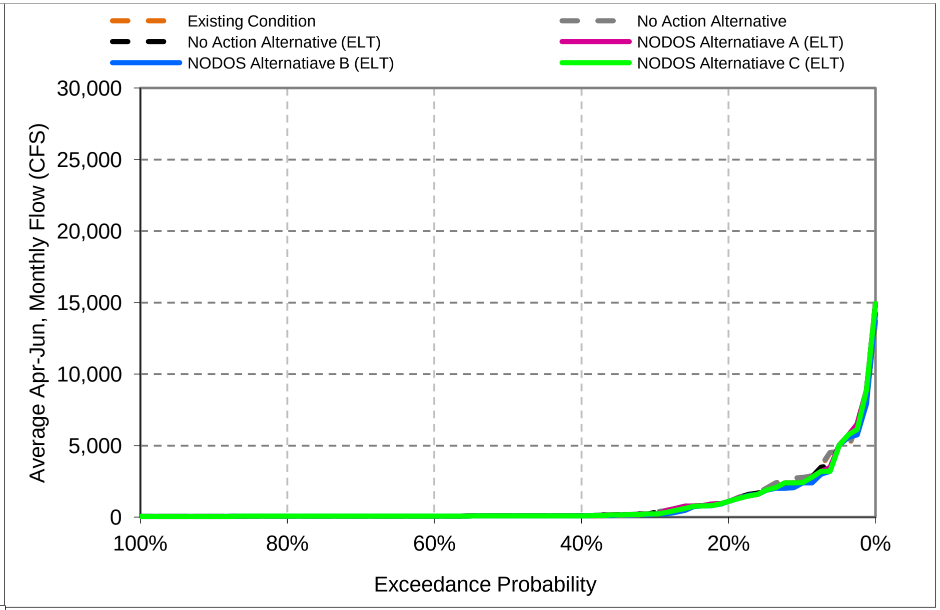


Figure 25B-46-2.
Yolo Bypass,
Average Jan-Mar, Monthly Flow (CFS)
ELT and LLT trend





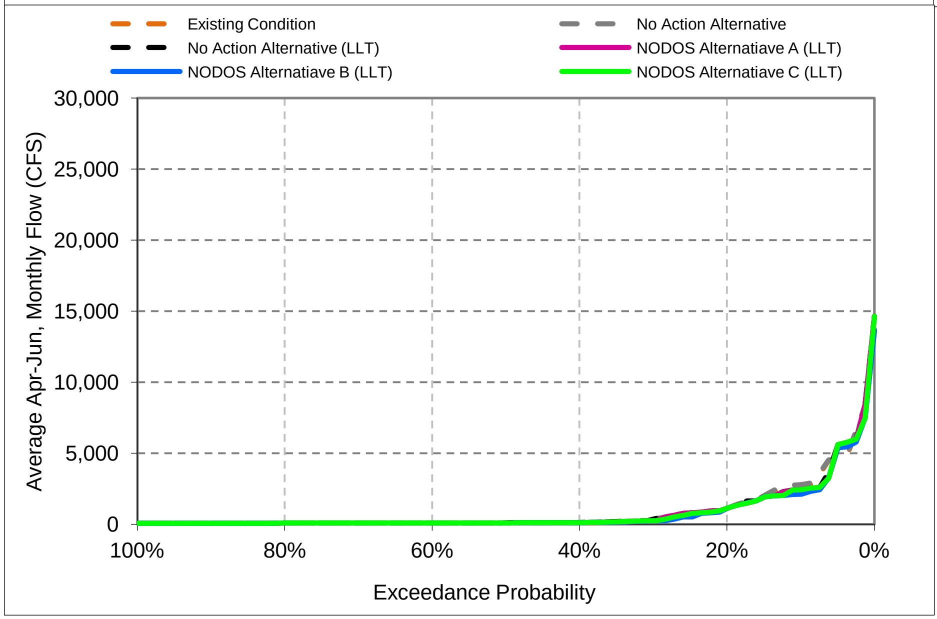
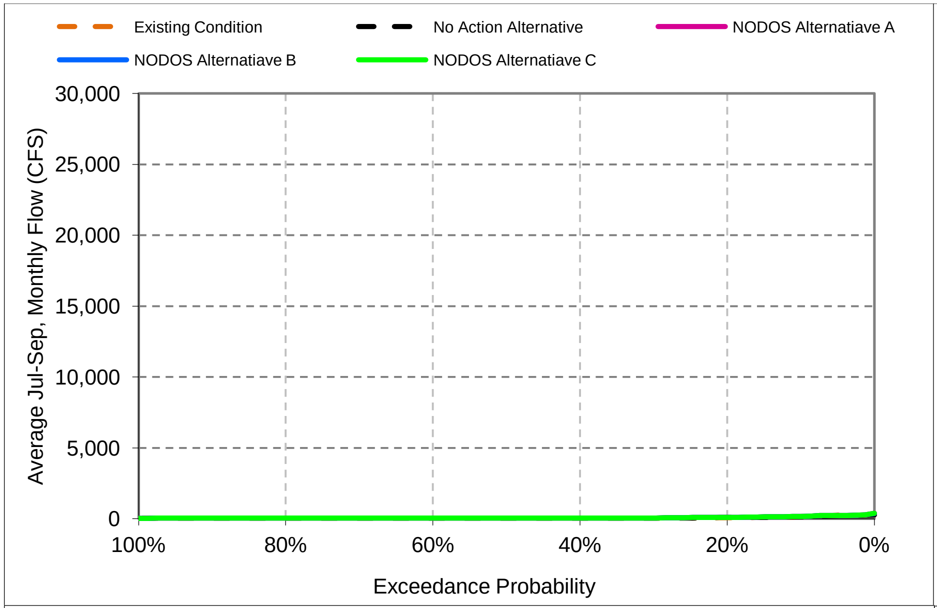
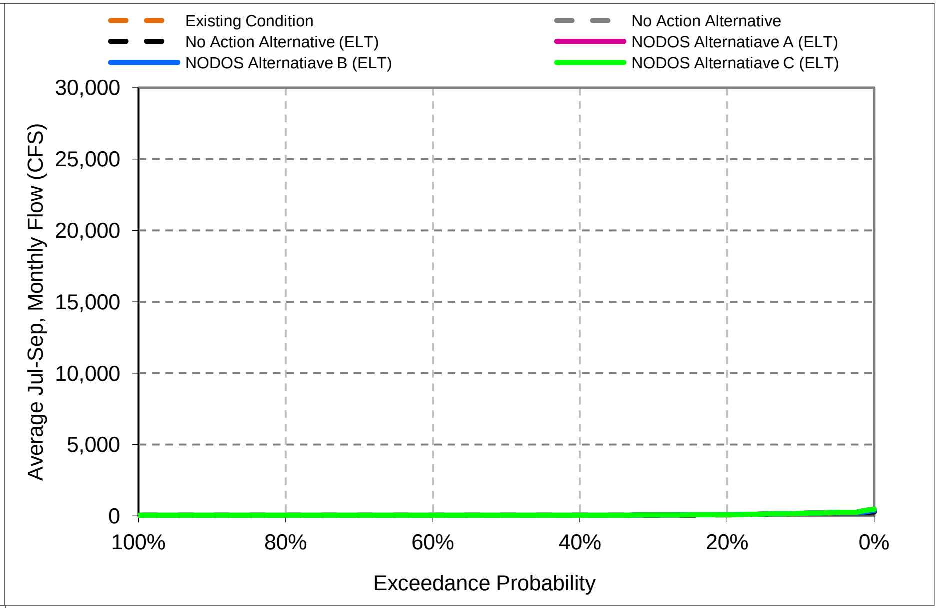


Figure 25B-46-3.
Yolo Bypass,
Average Apr-Jun, Monthly Flow (CFS)
ELT and LLT trend





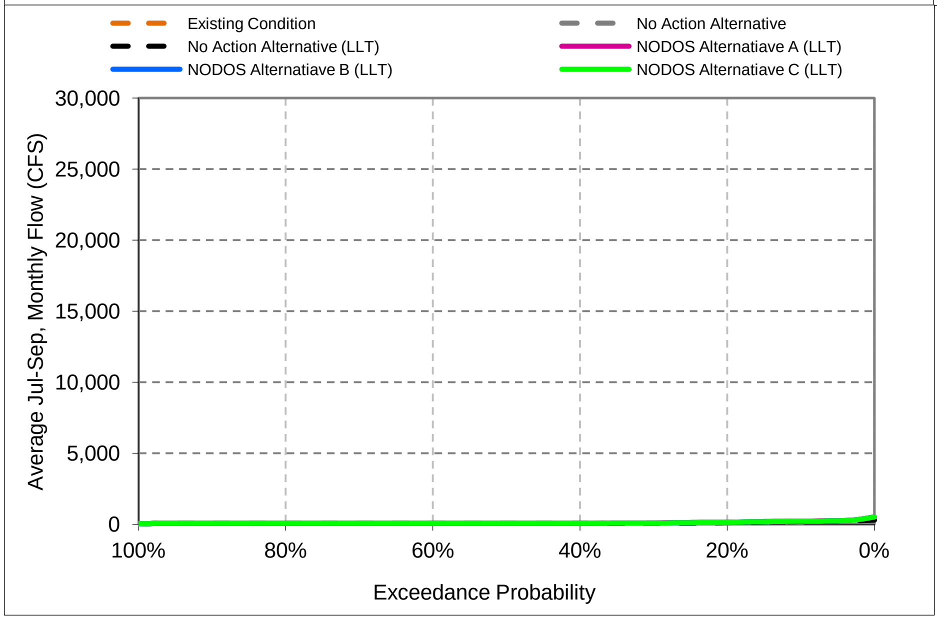


Figure 25B-46-4.
Yolo Bypass,
Average Jul-Sep, Monthly Flow (CFS)
ELT and LLT trend

Table 25B-46-2.
Yolo Bypass
Monthly Flow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	1,296	--	-222	+731	10,174	--	-1,896	+6,073	956	--	-266	+461	77	--	+13	+8
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	1,221	-75	-35	-161	9,699	-475	-302	-465	944	-12	+0	-39	84	+7	+8	+15
NODOS Alternative B	1,240	-56	-5	-129	9,658	-516	-228	-428	886	-70	-49	-108	84	+7	+11	+15
NODOS Alternative C	1,198	-98	-43	-171	9,610	-564	-417	-599	932	-24	-2	-46	84	+7	+9	+17

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	4,664	--	-832	+2,786	32,707	--	-4,899	+17,568	3,379	--	-976	+1,663	146	--	+37	+29
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,414	-249	-95	-564	31,760	-947	-584	-964	3,350	-29	+0	-68	172	+26	+25	+44
NODOS Alternative B	4,487	-176	+2	-455	31,463	-1,243	-525	-1,069	3,144	-234	-191	-326	172	+25	+30	+42
NODOS Alternative C	4,327	-337	-125	-603	31,485	-1,222	-957	-1,290	3,323	-56	-9	-95	172	+26	+27	+44
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	284	--	-28	+36	6,094	--	-2,382	+6,019	222	--	-63	+142	54	--	+12	+3
Change in Alternative from No Action Alternative:																
NODOS Alternative A	248	-36	-41	-61	5,500	-594	-410	-465	206	-15	+0	-87	57	+3	+7	+17
NODOS Alternative B	250	-33	-18	-43	5,549	-546	-222	-346	185	-37	-0	-100	57	+3	+12	+18
NODOS Alternative C	248	-36	-39	-60	5,434	-661	-448	-610	186	-36	-0	-89	57	+3	+7	+21
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	51	--	+2	-1	1,107	--	-199	+414	81	--	+1	+2	54	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	46	-5	-2	+0	797	-310	-202	-381	80	-1	+0	+0	54	+0	+0	+0
NODOS Alternative B	46	-5	-4	+1	895	-212	-150	-241	80	-1	+0	+0	54	+0	+0	+0
NODOS Alternative C	46	-5	-2	-0	796	-311	-235	-444	80	-1	+0	+0	54	+0	+0	+0
Lower (100%-75% exceedence)																
Change in No Action Alternative:	17	--	-0	+1	162	--	-44	+17	65	--	-1	+0	51	--	+0	+0
Change in Alternative from No Action Alternative:																
NODOS Alternative A	16	-1	-0	-1	117	-45	-13	-44	64	-1	+0	+0	51	+0	+0	+0
NODOS Alternative B	16	-1	-0	-1	113	-49	-10	-46	64	-1	+0	+0	51	+0	+1	+0
NODOS Alternative C	16	-1	+0	-1	107	-55	-23	-45	64	-1	+0	+0	51	+0	+1	+0

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

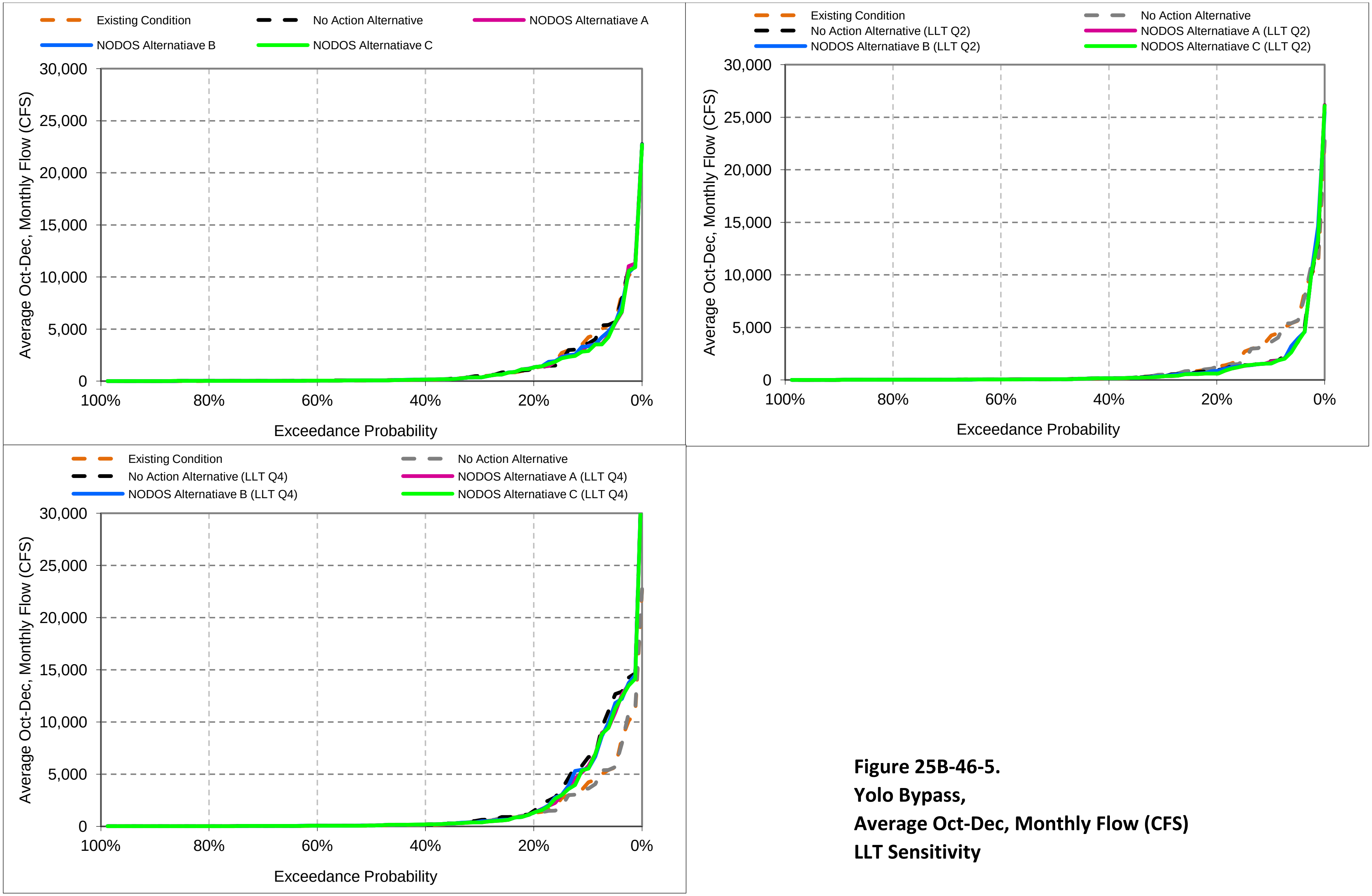
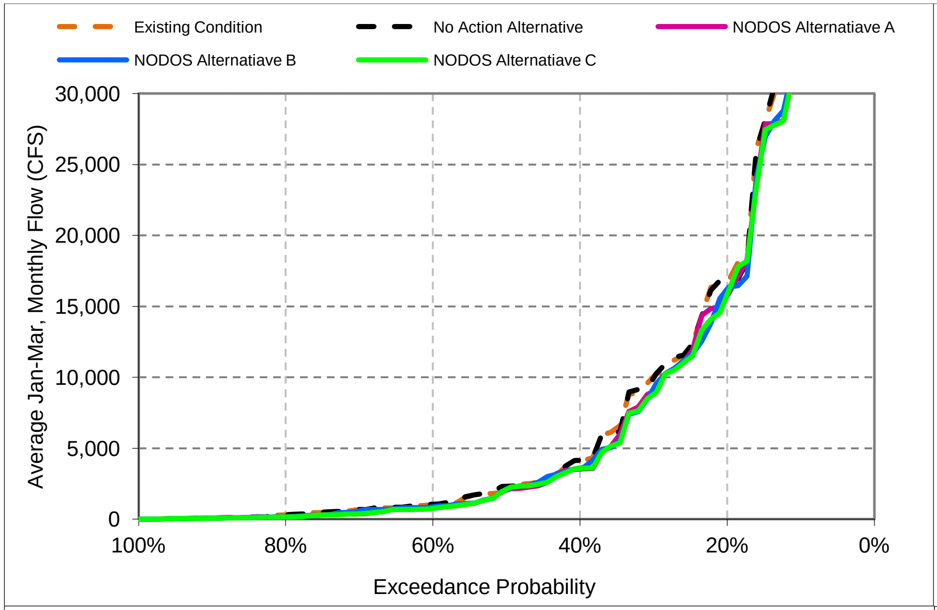
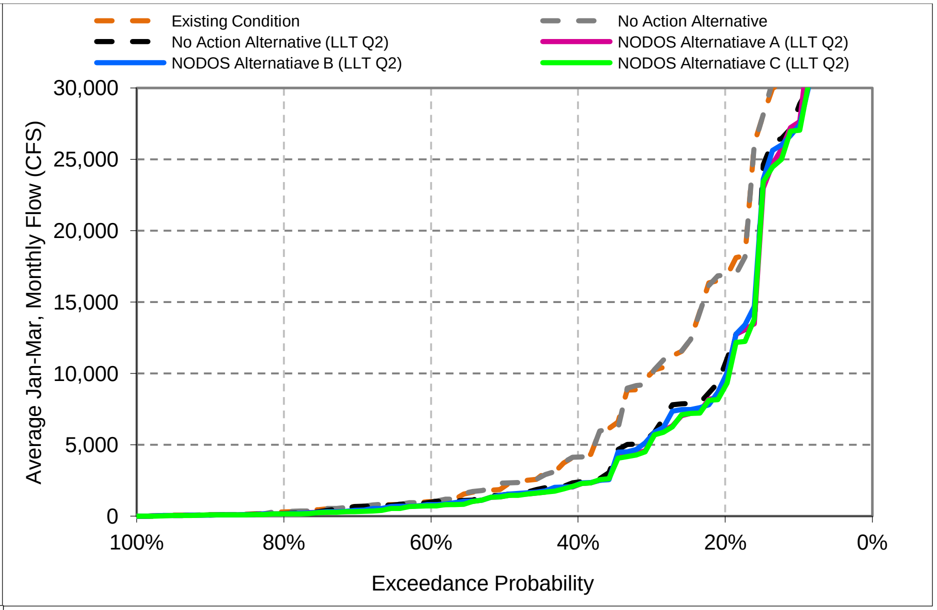


Figure 25B-46-5.
Yolo Bypass,
Average Oct-Dec, Monthly Flow (CFS)
LLT Sensitivity





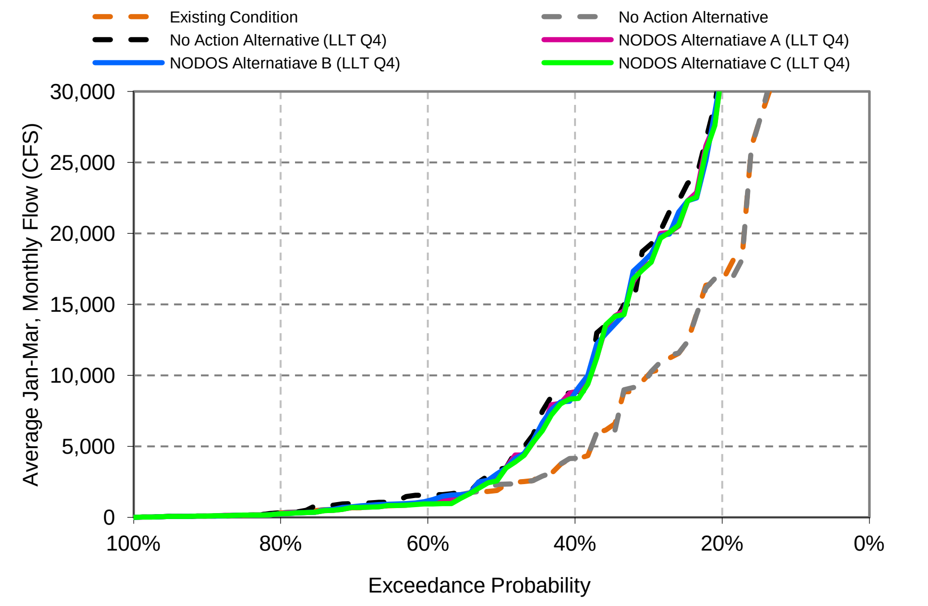
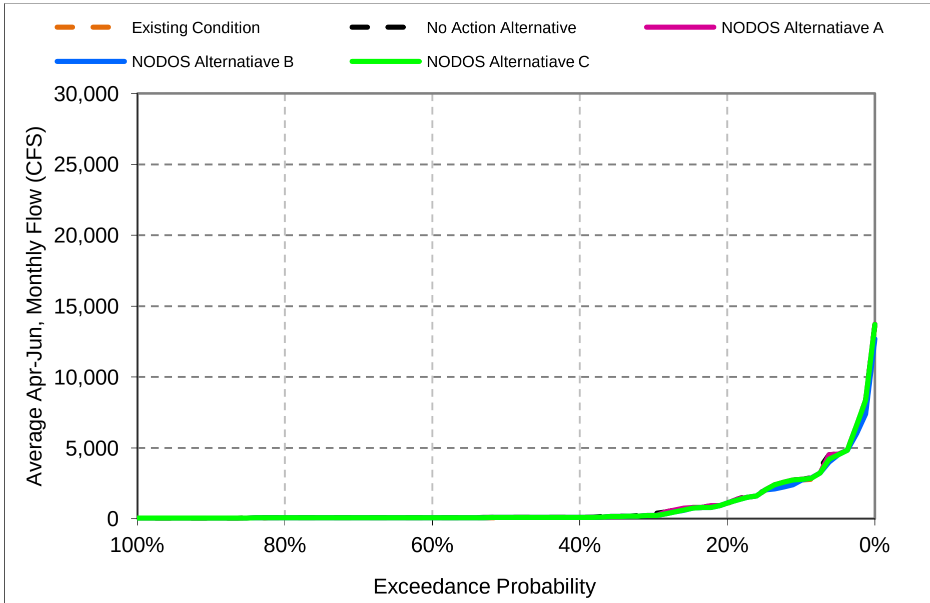
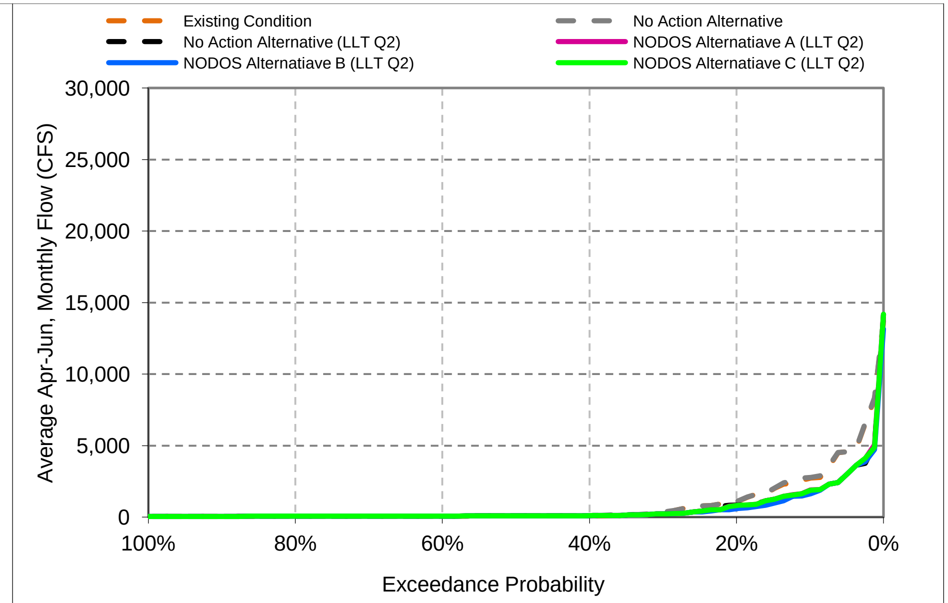


Figure 25B-46-6.
Yolo Bypass,
Average Jan-Mar, Monthly Flow (CFS)
LLT Sensitivity





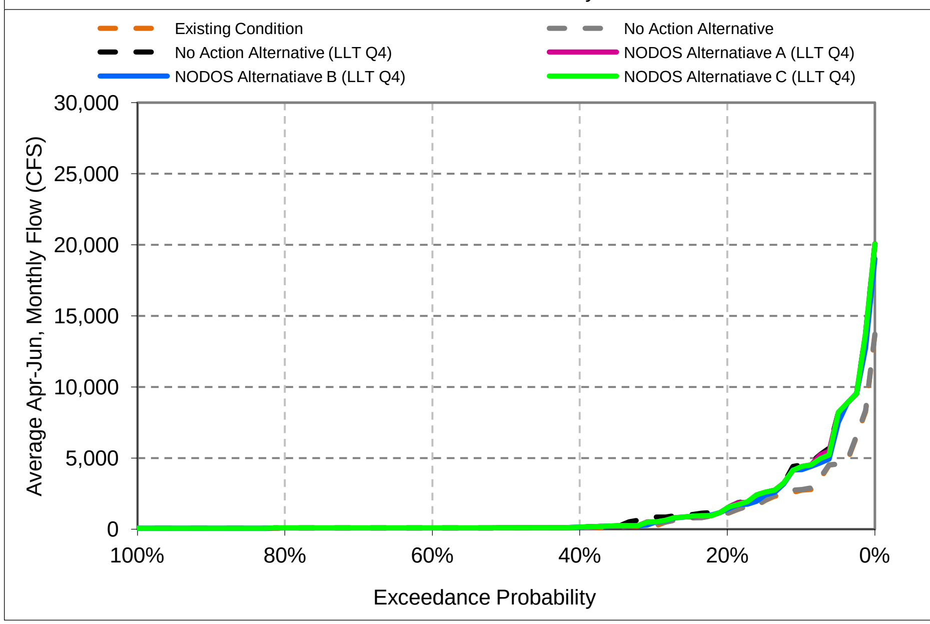
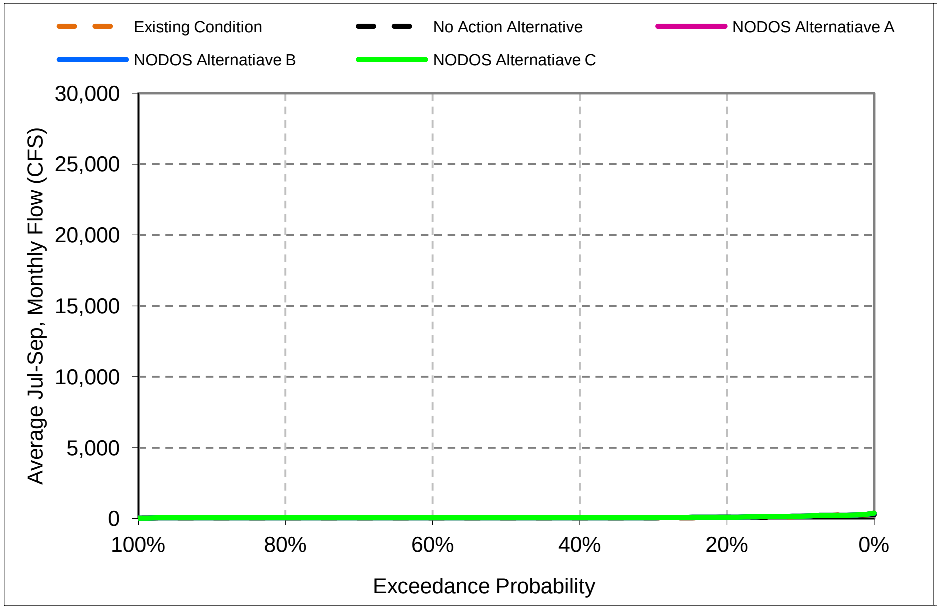
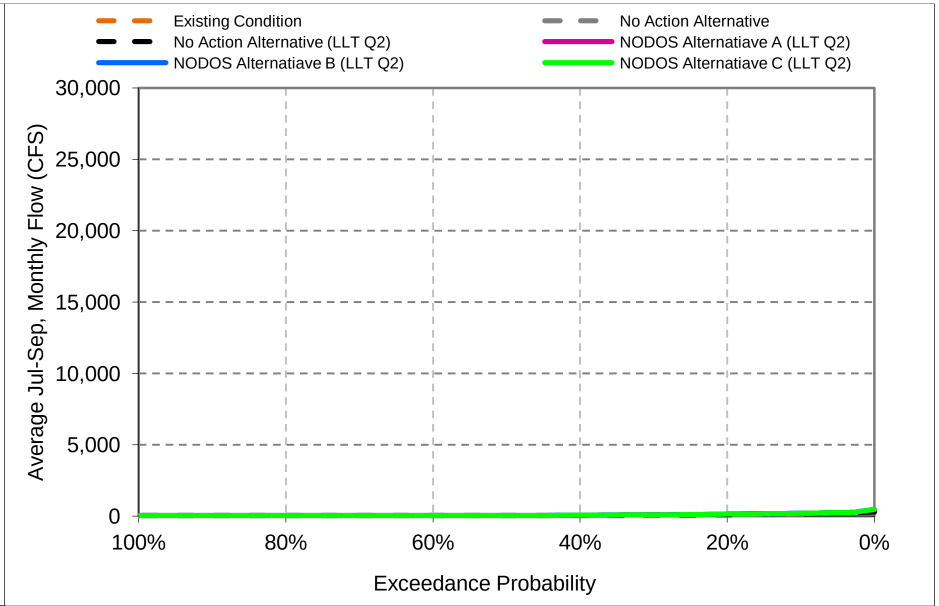


Figure 25B-46-7.
Yolo Bypass,
Average Apr-Jun, Monthly Flow (CFS)
LLT Sensitivity





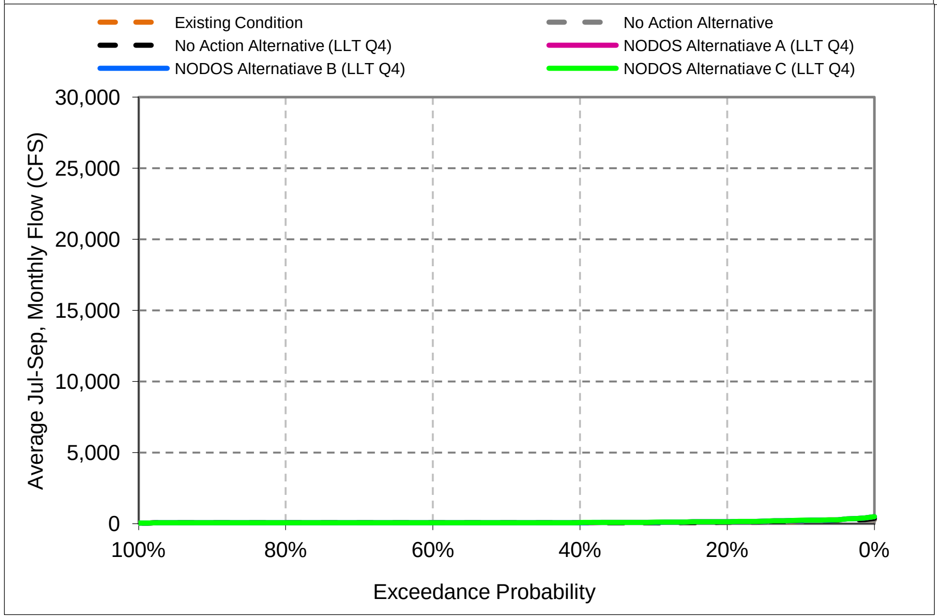


Figure 25B-46-8.
Yolo Bypass,
Average Jul-Sep, Monthly Flow (CFS)
LLT Sensitivity

Table 25B-47-1.
Sacramento/San Joaquin River Delta
Monthly Outflow (CFS)
ELT and LLT trend

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	13,104	--	+865	+664	45,573	--	+2,516	+3,748	21,573	--	-1,009	-1,850	7,435	--	-77	+420
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	12,894	-210	-292	-332	43,957	-1,616	-1,654	-1,587	21,639	+66	+87	-39	7,985	+551	+572	+600
NODOS Alternative B	13,008	-96	-225	-158	44,015	-1,558	-1,402	-1,360	21,401	-172	-183	-319	7,995	+560	+616	+567
NODOS Alternative C	12,873	-231	-354	-379	43,692	-1,881	-1,836	-1,866	21,577	+4	+37	-101	8,121	+686	+706	+688

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	29,538	--	+3,035	+512	99,912	--	+7,577	+11,240	46,871	--	-2,048	-5,185	12,394	--	-716	-136
Change in Alternative from No Action Alternative:																
NODOS Alternative A	28,902	-636	-566	-748	98,535	-1,377	-1,583	-1,799	46,874	+2	-14	-266	12,811	+416	+669	+651
NODOS Alternative B	29,100	-438	-402	-67	97,772	-2,140	-1,879	-2,109	46,119	-752	-931	-1,158	12,848	+453	+732	+694
NODOS Alternative C	28,749	-789	-722	-950	97,999	-1,913	-1,970	-2,237	46,691	-180	-254	-477	12,891	+497	+753	+707
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	10,644	--	+208	+319	45,959	--	+2,268	+3,037	19,730	--	-1,519	-2,322	8,484	--	+344	+839
Change in Alternative from No Action Alternative:																
NODOS Alternative A	10,198	-446	-509	-354	43,999	-1,960	-1,763	-1,492	19,732	+2	+57	-82	9,068	+584	+553	+661
NODOS Alternative B	10,347	-298	-483	-293	44,269	-1,690	-1,416	-1,319	19,522	-208	-174	-304	9,166	+682	+635	+642
NODOS Alternative C	10,227	-418	-508	-338	43,781	-2,178	-2,030	-1,954	19,658	-72	-3	-160	9,151	+667	+681	+726
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	6,934	--	+156	+817	22,766	--	+301	+389	11,547	--	-471	-322	4,718	--	+203	+695
Change in Alternative from No Action Alternative:																
NODOS Alternative A	6,964	+30	-131	-251	20,487	-2,279	-2,396	-2,151	11,706	+159	+144	+57	5,627	+908	+691	+718
NODOS Alternative B	7,023	+89	-58	-257	20,905	-1,861	-1,652	-1,297	11,664	+117	+156	+70	5,587	+868	+723	+664
NODOS Alternative C	6,995	+61	-180	-201	20,166	-2,600	-2,488	-2,365	11,703	+155	+218	+88	5,895	+1,177	+914	+927
Lower (100%-75% exceedence)																
Change in No Action Alternative:	4,476	--	-48	+1,015	12,587	--	-198	+133	7,577	--	+4	+481	4,063	--	-104	+316
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,711	+235	+54	+44	11,690	-896	-916	-930	7,680	+103	+162	+136	4,375	+312	+380	+378
NODOS Alternative B	4,757	+281	+54	-21	12,025	-562	-672	-712	7,745	+169	+234	+134	4,321	+258	+381	+276
NODOS Alternative C	4,726	+250	+13	+2	11,705	-882	-896	-935	7,694	+117	+191	+152	4,490	+427	+485	+407

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario

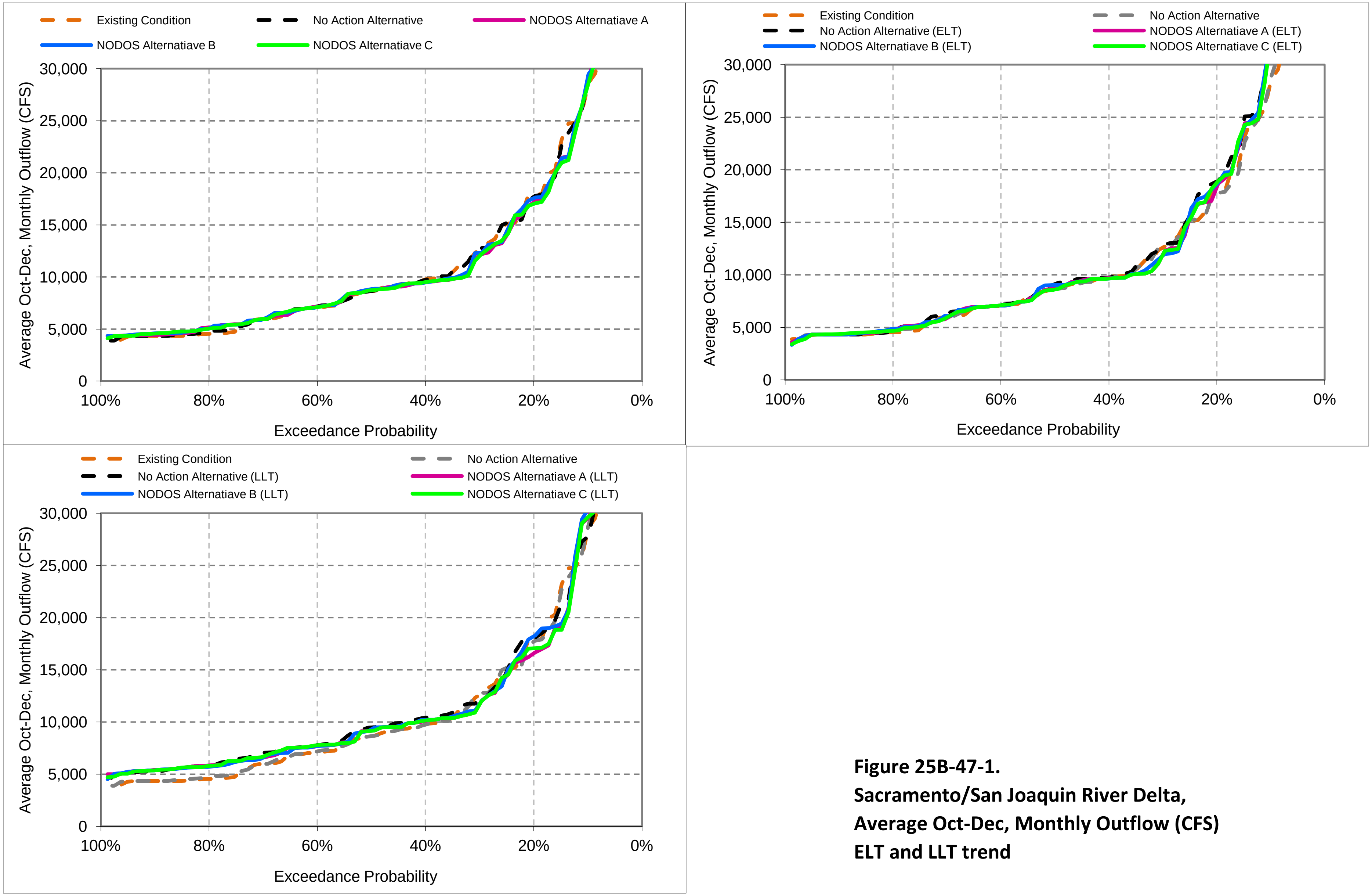
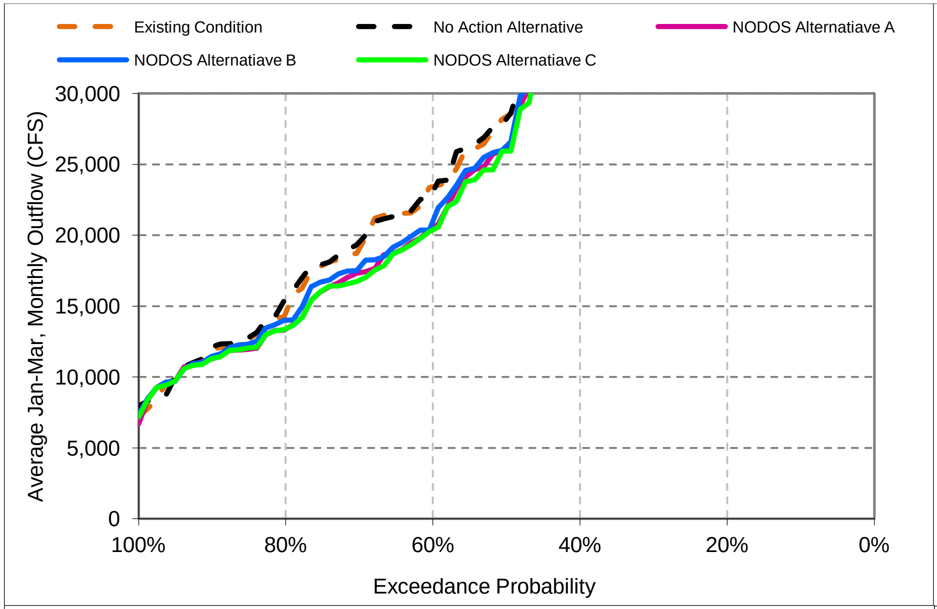
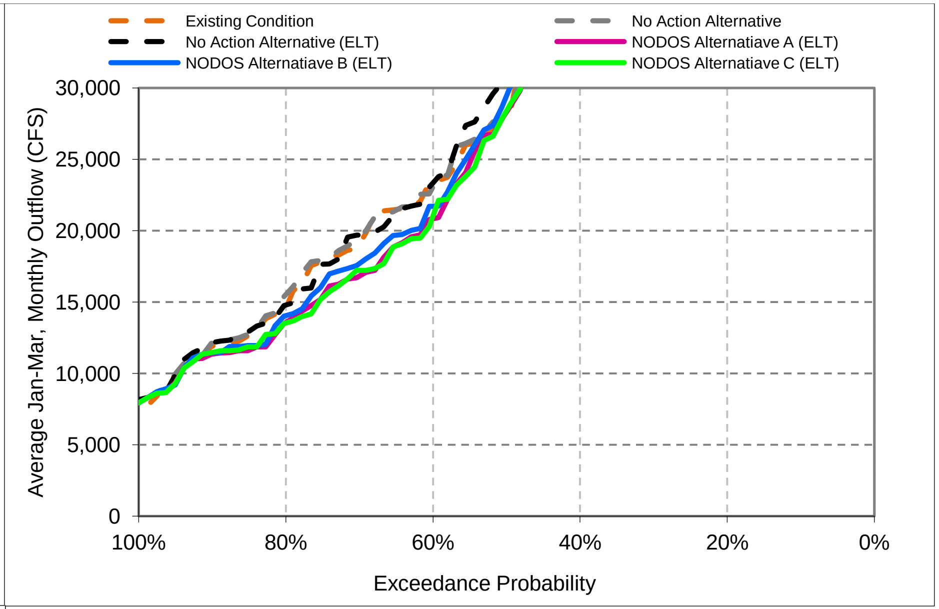


Figure 25B-47-1.
Sacramento/San Joaquin River Delta,
Average Oct-Dec, Monthly Outflow (CFS)
ELT and LLT trend





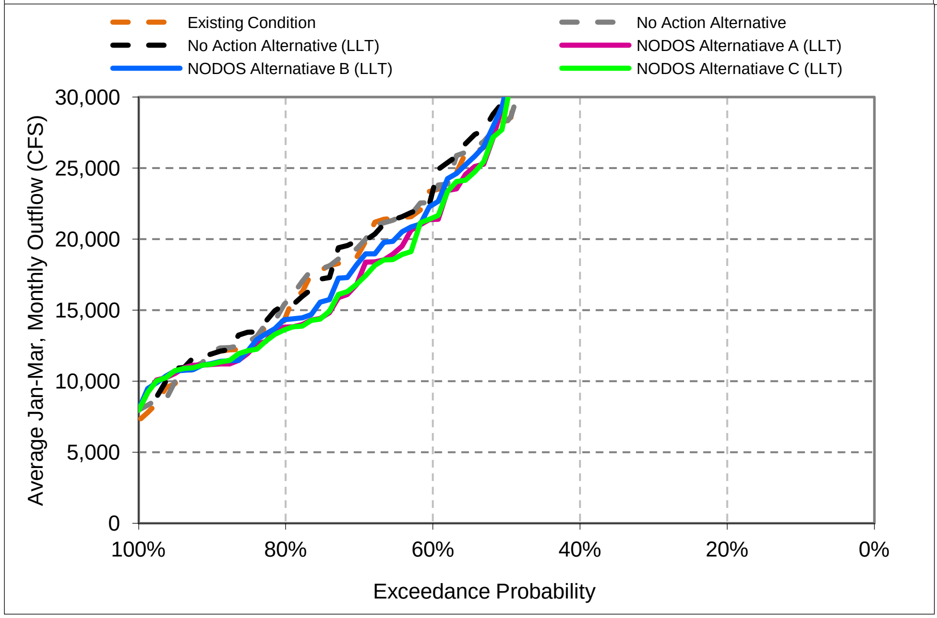
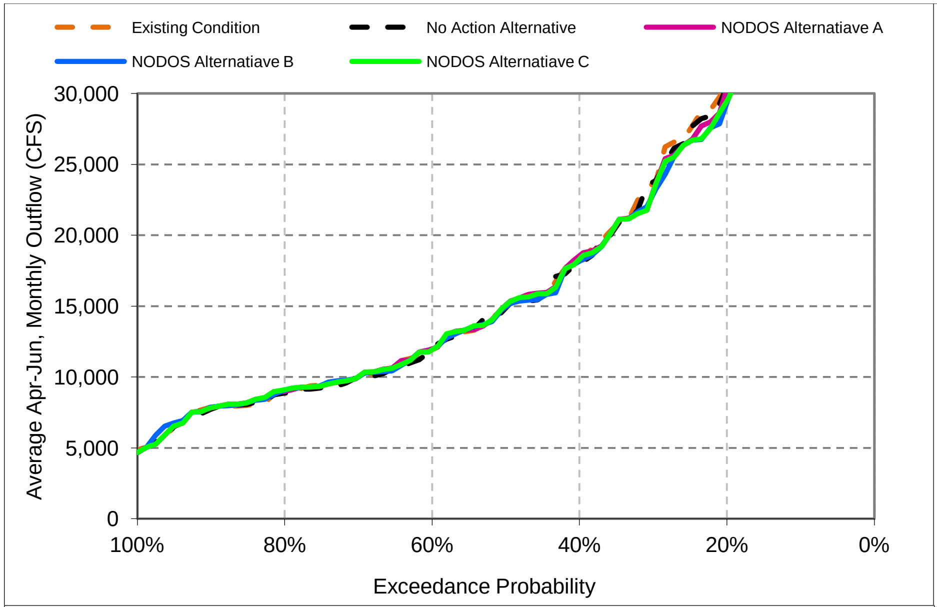
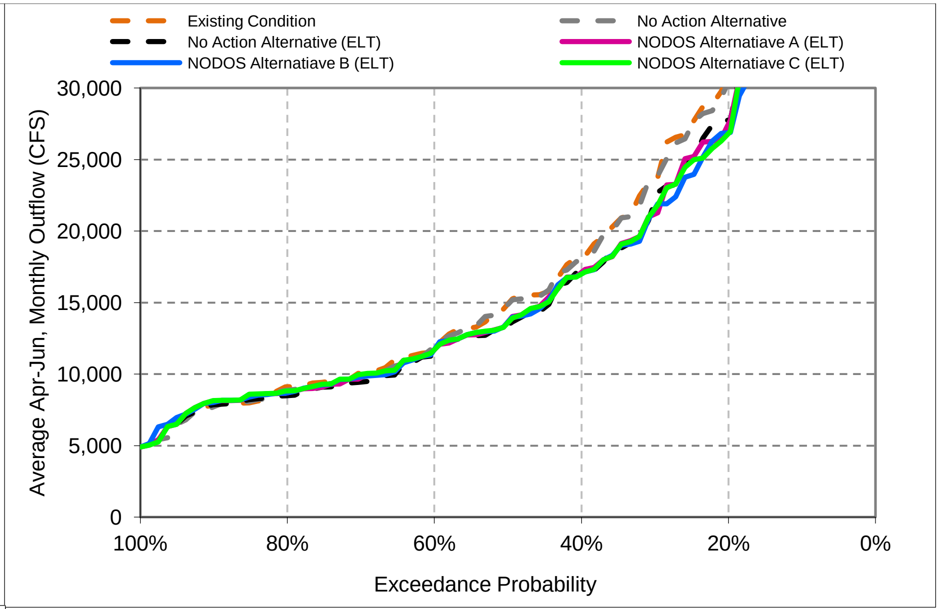


Figure 25B-47-2.
Sacramento/San Joaquin River Delta,
Average Jan-Mar, Monthly Outflow (CFS)
ELT and LLT trend





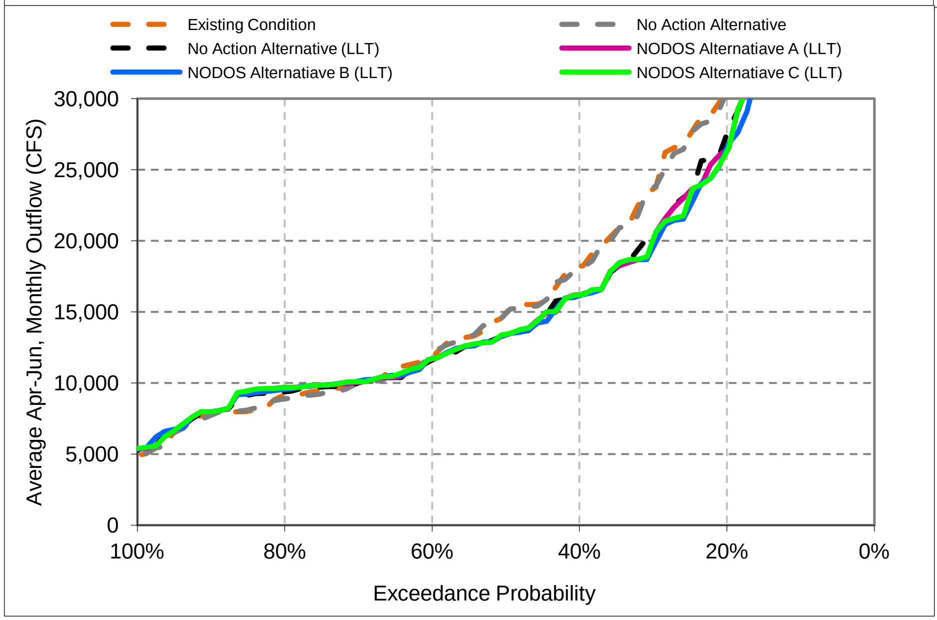
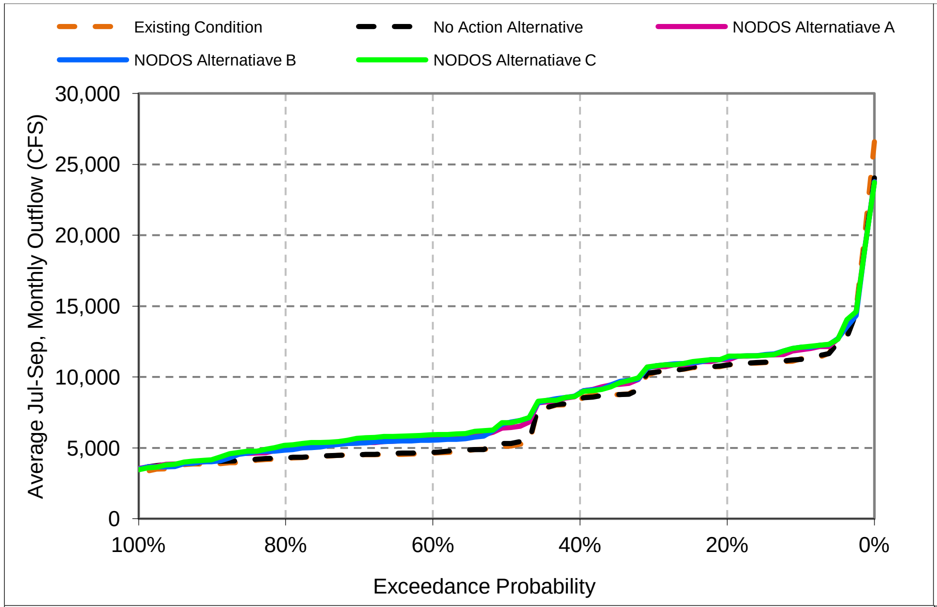
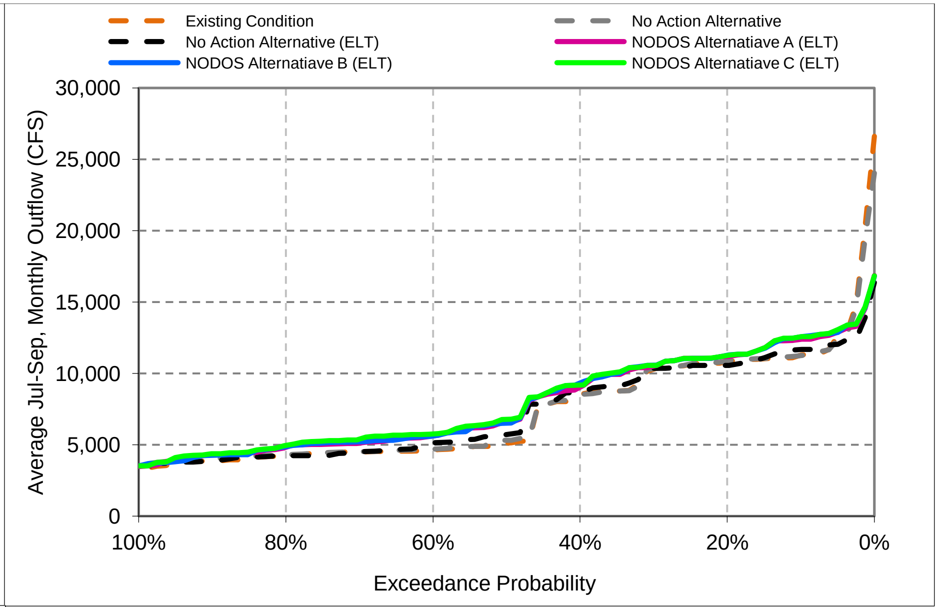


Figure 25B-47-3.
Sacramento/San Joaquin River Delta,
Average Apr-Jun, Monthly Outflow (CFS)
ELT and LLT trend





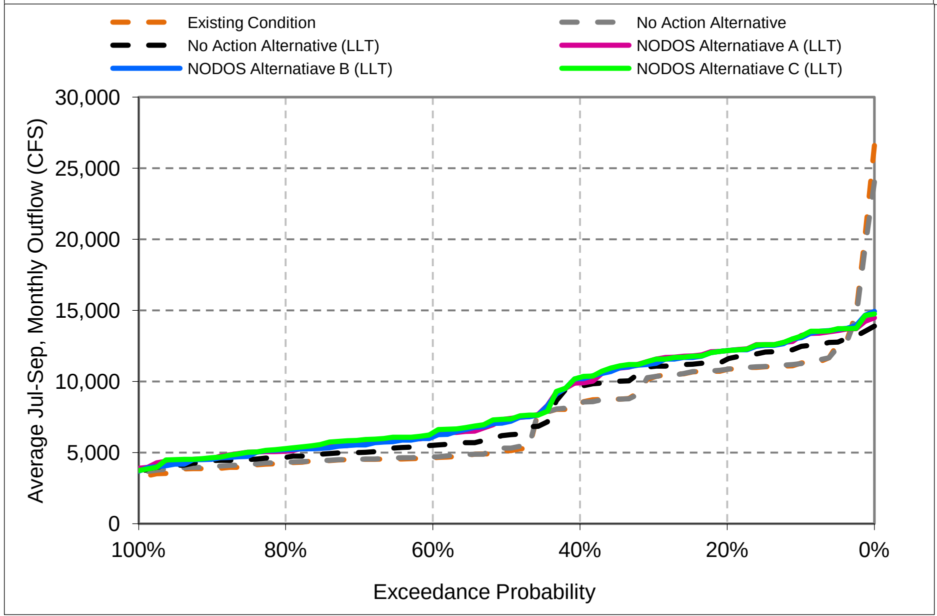


Figure 25B-47-4.
Sacramento/San Joaquin River Delta,
Average Jul-Sep, Monthly Outflow (CFS)
ELT and LLT trend

Table 25B-47-2.
Sacramento/San Joaquin River Delta
Monthly Outflow (CFS)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	13,104	--	-931	+3,222	45,573	--	-5,556	+11,927	21,573	--	-5,029	+2,932	7,435	--	-820	+1,629
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	12,894	-210	-305	-426	43,957	-1,616	-1,574	-1,517	21,639	+66	-23	-5	7,985	+551	+364	+611
NODOS Alternative B	13,008	-96	-234	-327	44,015	-1,558	-1,137	-1,363	21,401	-172	-249	-367	7,995	+560	+368	+621
NODOS Alternative C	12,873	-231	-365	-441	43,692	-1,881	-1,851	-1,831	21,577	+4	-41	-106	8,121	+686	+464	+756

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	29,538	--	-3,106	+7,754	99,912	--	-10,883	+27,806	46,871	--	-13,043	+6,601	12,394	--	-1,329	+873
Change in Alternative from No Action Alternative:																
NODOS Alternative A	28,902	-636	-961	-1,156	98,535	-1,377	-1,245	-1,283	46,874	+2	-126	-304	12,811	+416	+538	+547
NODOS Alternative B	29,100	-438	-695	-955	97,772	-2,140	-1,127	-1,617	46,119	-752	-862	-1,188	12,848	+453	+583	+566
NODOS Alternative C	28,749	-789	-1,185	-1,304	97,999	-1,913	-2,019	-1,826	46,691	-180	-218	-540	12,891	+497	+666	+663
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	10,644	--	-984	+1,615	45,959	--	-8,228	+13,704	19,730	--	-5,349	+2,421	8,484	--	-1,770	+2,161
Change in Alternative from No Action Alternative:																
NODOS Alternative A	10,198	-446	-376	-644	43,999	-1,960	-2,138	-1,487	19,732	+2	-122	-65	9,068	+584	+452	+601
NODOS Alternative B	10,347	-298	-339	-481	44,269	-1,690	-1,513	-1,214	19,522	-208	-340	-526	9,166	+682	+469	+652
NODOS Alternative C	10,227	-418	-348	-618	43,781	-2,178	-2,394	-1,710	19,658	-72	-146	-136	9,151	+667	+628	+698
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	6,934	--	-161	+1,715	22,766	--	-2,411	+4,543	11,547	--	-1,256	+1,394	4,718	--	-150	+2,512
Change in Alternative from No Action Alternative:																
NODOS Alternative A	6,964	+30	-75	+77	20,487	-2,279	-1,993	-1,959	11,706	+159	+0	+91	5,627	+908	+328	+859
NODOS Alternative B	7,023	+89	-72	+70	20,905	-1,861	-1,255	-1,648	11,664	+117	+28	+43	5,587	+868	+298	+882
NODOS Alternative C	6,995	+61	-57	+63	20,166	-2,600	-2,070	-2,404	11,703	+155	+26	+62	5,895	+1,177	+433	+1,046
Lower (100%-75% exceedence)																
Change in No Action Alternative:	4,476	--	+637	+1,576	12,587	--	-680	+1,390	7,577	--	-306	+1,213	4,063	--	-45	+1,037
Change in Alternative from No Action Alternative:																
NODOS Alternative A	4,711	+235	+225	+55	11,690	-896	-967	-1,358	7,680	+103	+153	+259	4,375	+312	+141	+449
NODOS Alternative B	4,757	+281	+193	+90	12,025	-562	-676	-980	7,745	+169	+186	+216	4,321	+258	+123	+400
NODOS Alternative C	4,726	+250	+169	+137	11,705	-882	-956	-1,404	7,694	+117	+172	+195	4,490	+427	+133	+627

1 Based on CALSIM II 82-year simulation period
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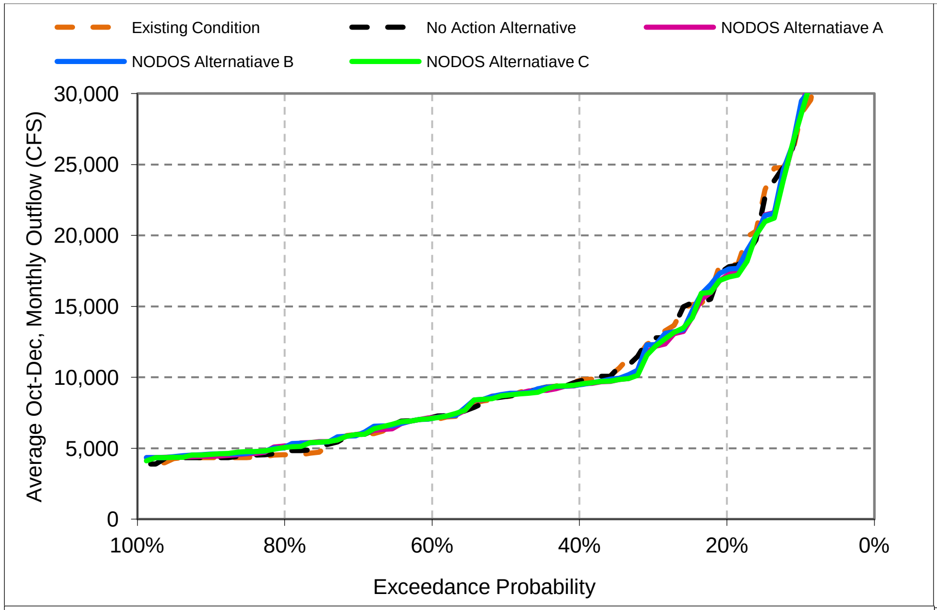
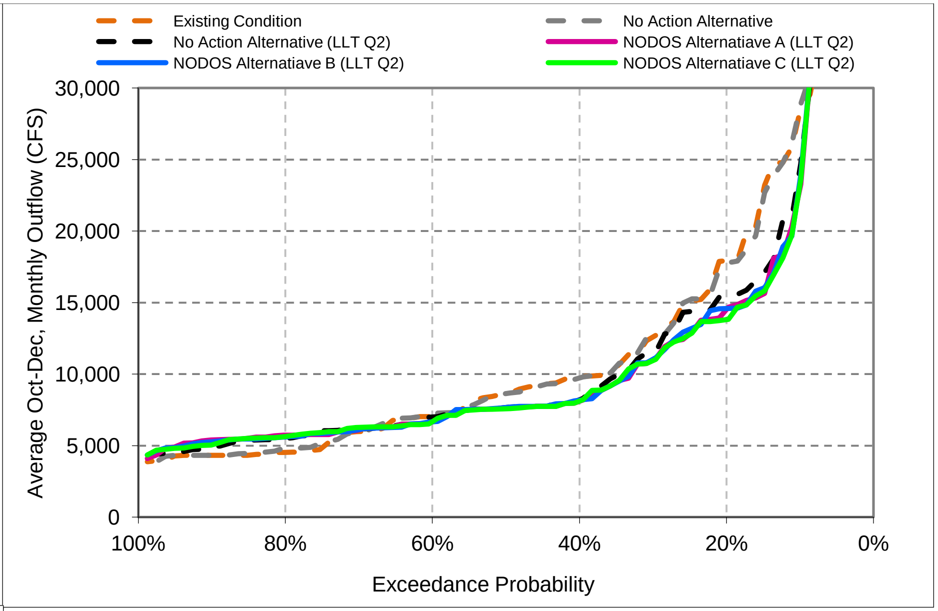




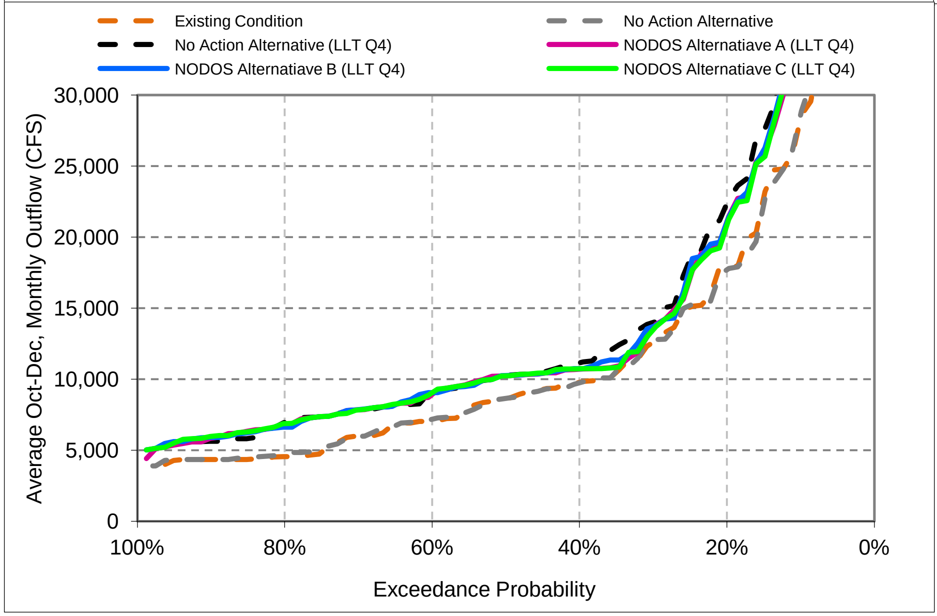


Figure 25B-47-5.
Sacramento/San Joaquin River Delta,
Average Oct-Dec, Monthly Outflow (CFS)
LLT Sensitivity

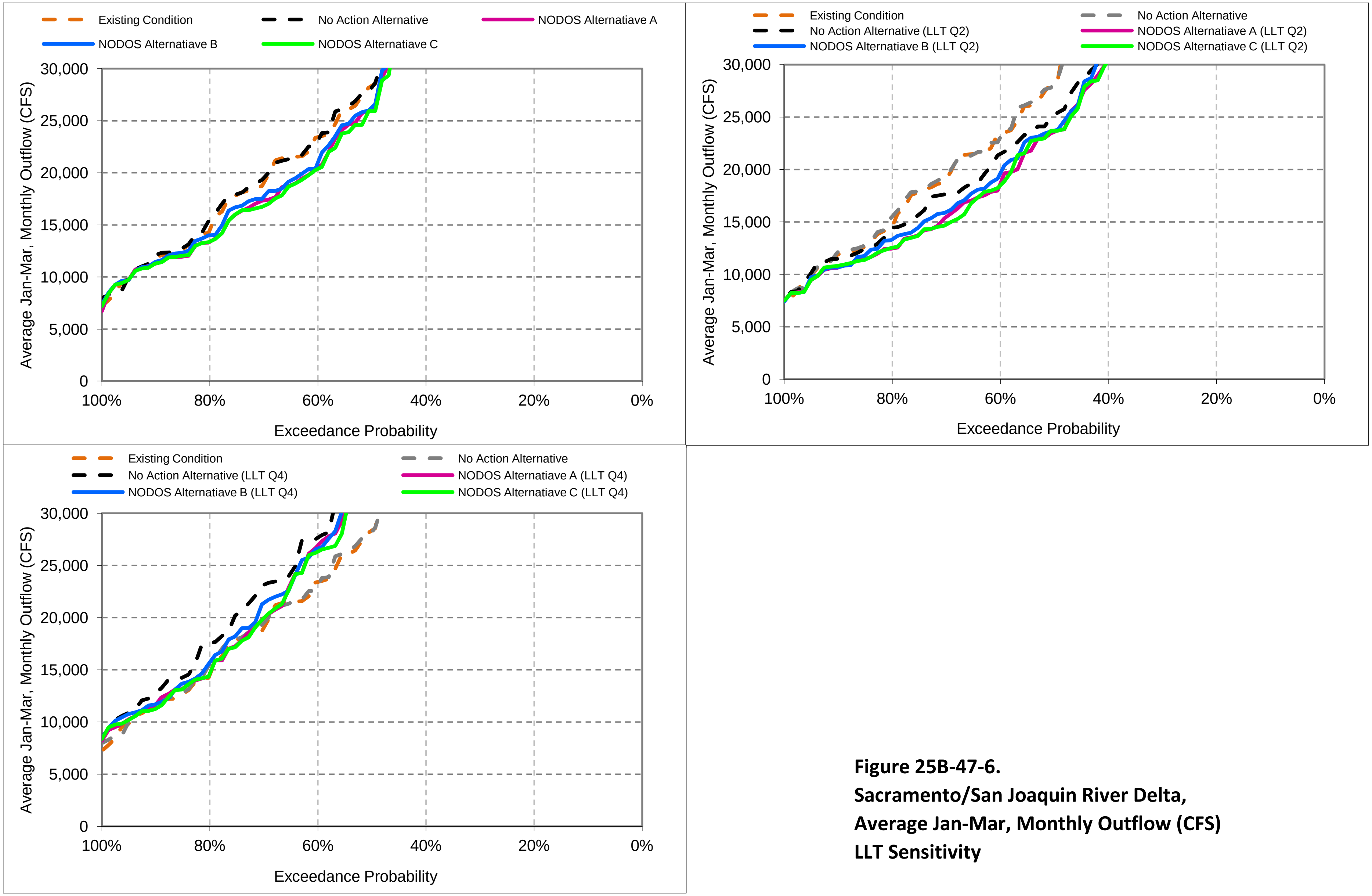
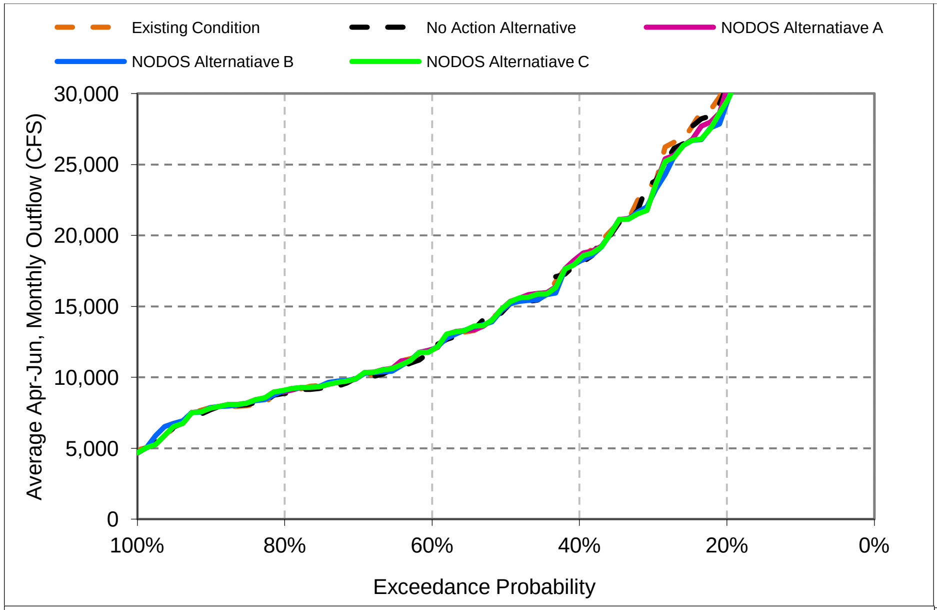
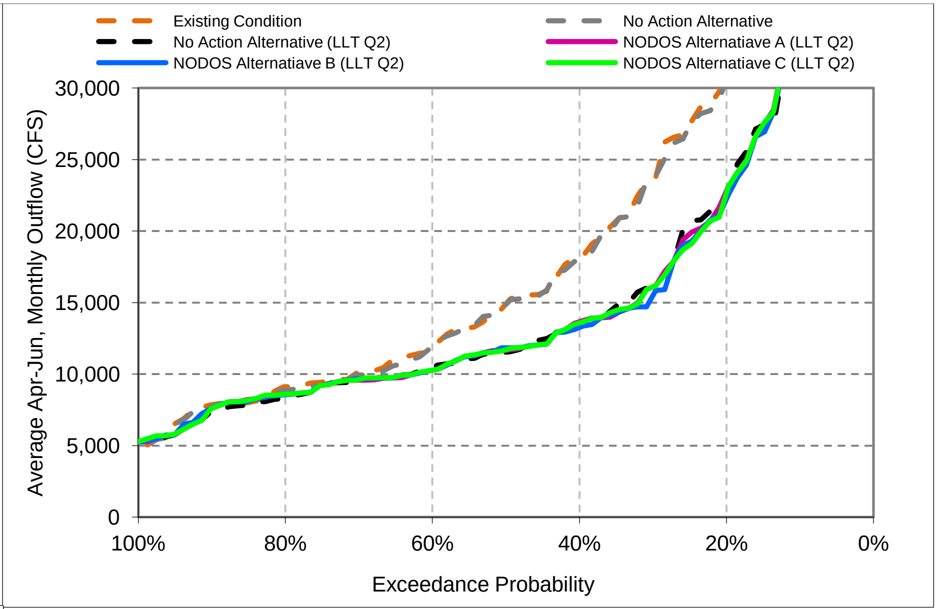


Figure 25B-47-6.
Sacramento/San Joaquin River Delta,
Average Jan-Mar, Monthly Outflow (CFS)
LLT Sensitivity





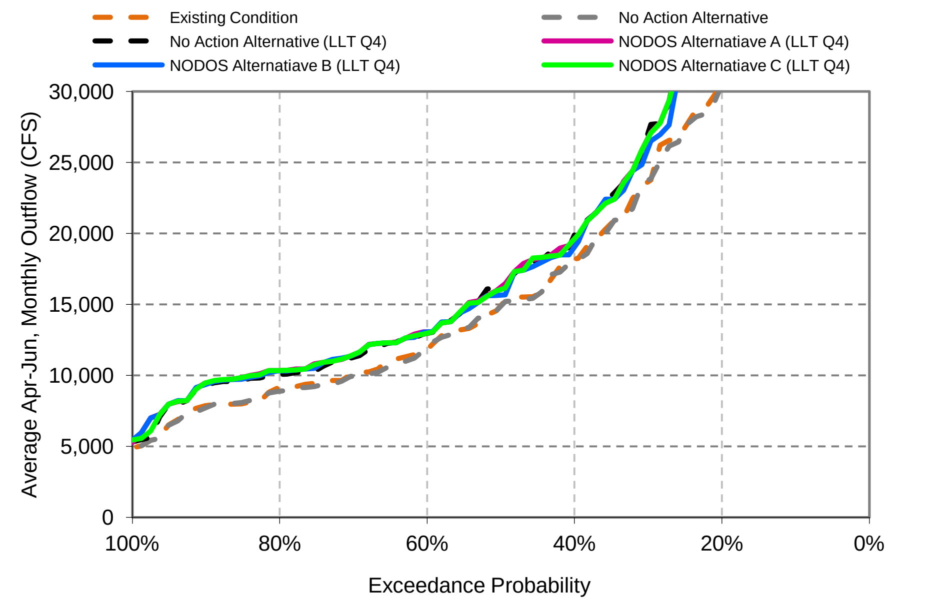
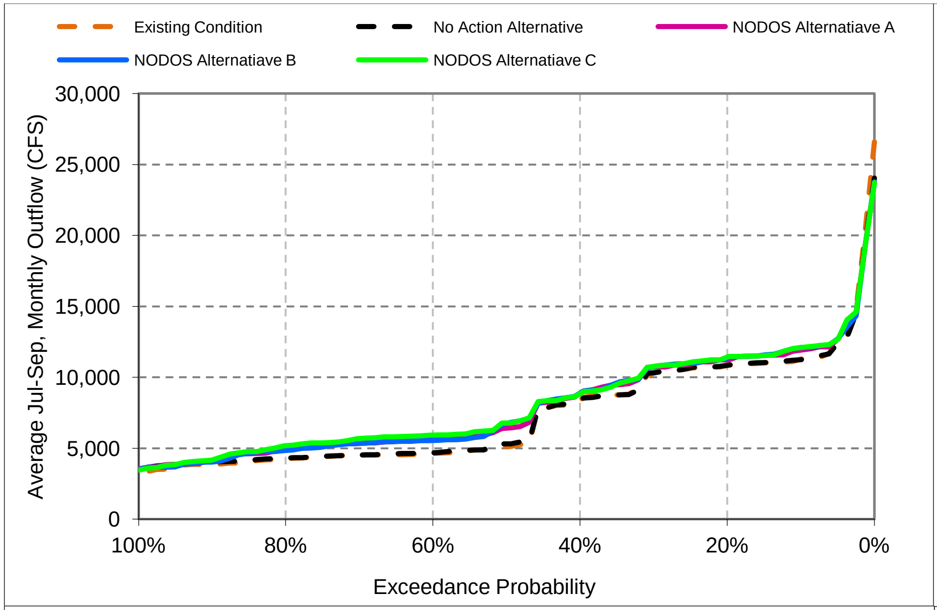
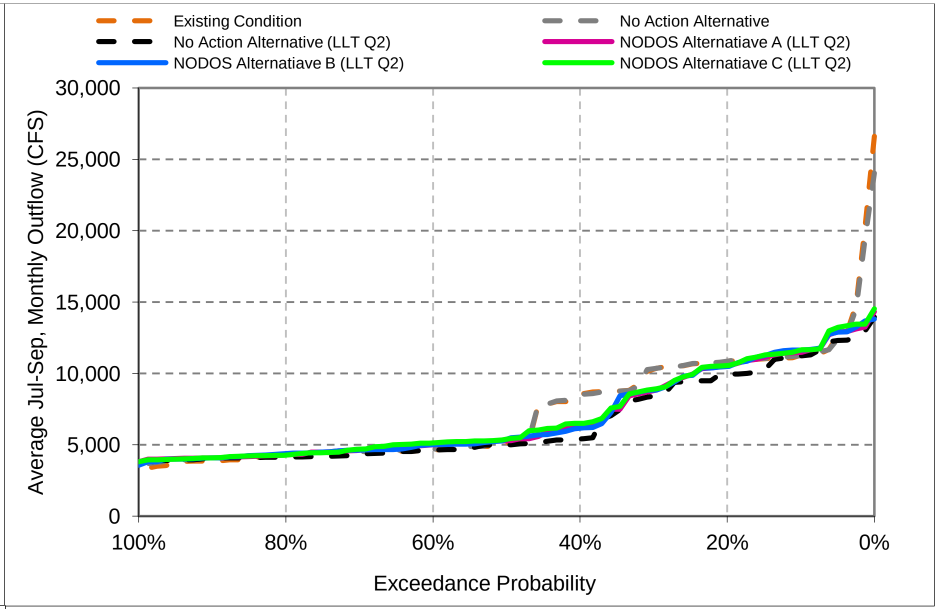


Figure 25B-47-7.
Sacramento/San Joaquin River Delta,
Average Apr-Jun, Monthly Outflow (CFS)
LLT Sensitivity





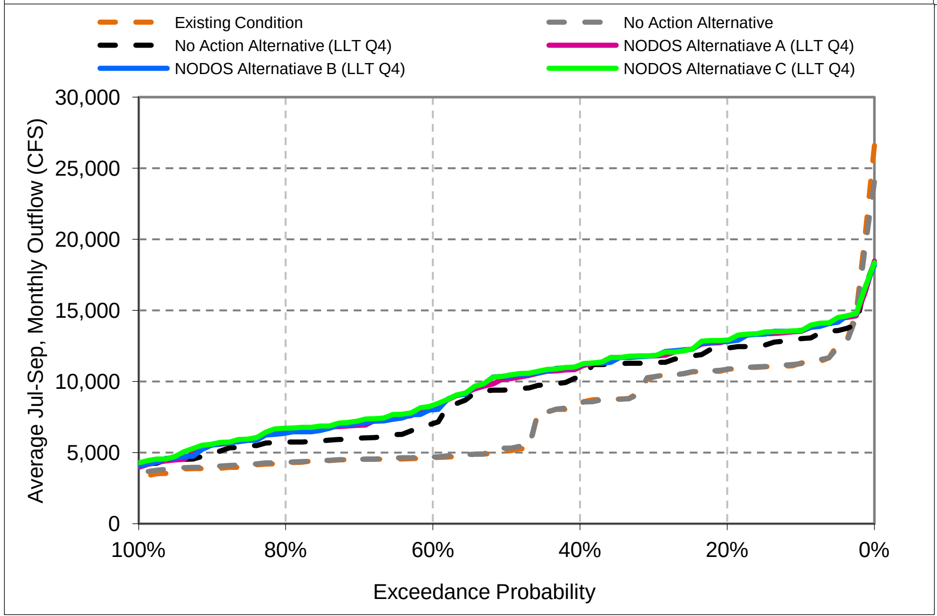


Figure 25B-47-8.
Sacramento/San Joaquin River Delta,
Average Jul-Sep, Monthly Outflow (CFS)
LLT Sensitivity

Table 25B-48-1.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP)
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

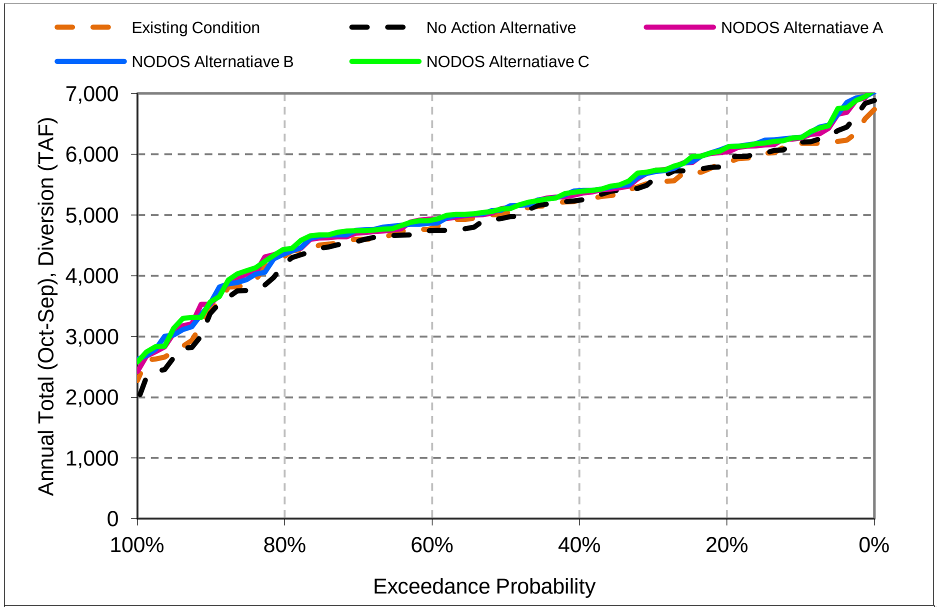
Long Term Average[1]

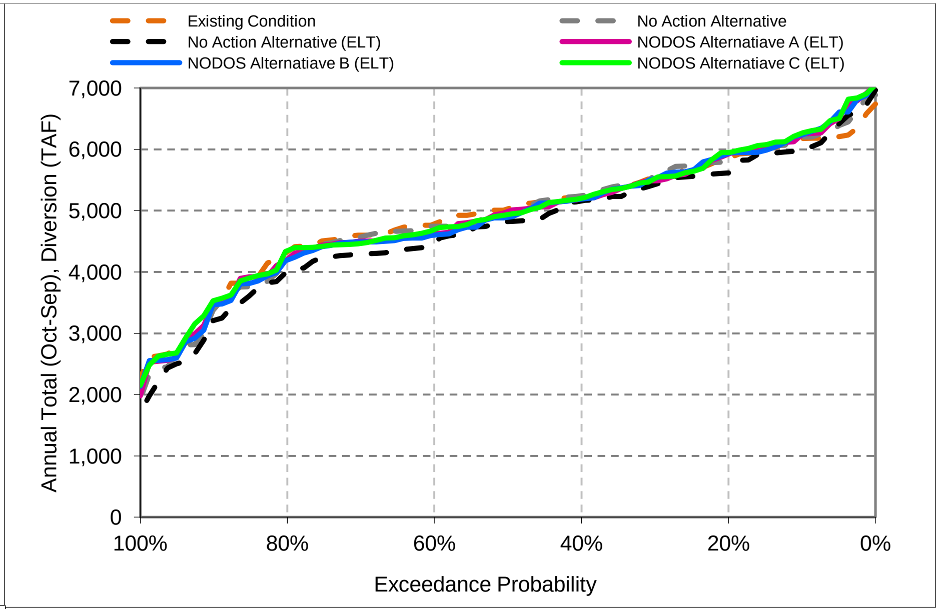
	Annual Total Oct-Sep			
	Current[2]		ELT	LLT
Change in No Action Alternative[3]:	4,902	--	-171	-463
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	5,081	+178	+172	+197
NODOS Alternative B	5,091	+189	+161	+178
NODOS Alternative C	5,111	+209	+198	+244

Quartile Averages

	Annual Total Oct-Sep			
	Current		ELT	LLT
Upper (25%-0% exceedence)				
Change in No Action Alternative:	6,164	--	-114	-396
Change in Alternative from No Action Alternative:				
NODOS Alternative A	6,324	+161	+165	+204
NODOS Alternative B	6,357	+193	+172	+206
NODOS Alternative C	6,353	+190	+196	+233
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	5,339	--	-156	-456
Change in Alternative from No Action Alternative:				
NODOS Alternative A	5,442	+103	+93	+137
NODOS Alternative B	5,452	+113	+105	+111
NODOS Alternative C	5,463	+124	+103	+156
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	4,700	--	-232	-503
Change in Alternative from No Action Alternative:				
NODOS Alternative A	4,850	+150	+170	+187
NODOS Alternative B	4,864	+164	+137	+172
NODOS Alternative C	4,880	+180	+176	+269
Lower (100%-75% exceedence)				
Change in No Action Alternative:	3,417	--	-187	-498
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,711	+294	+256	+257
NODOS Alternative B	3,698	+281	+227	+219
NODOS Alternative C	3,754	+337	+310	+315

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





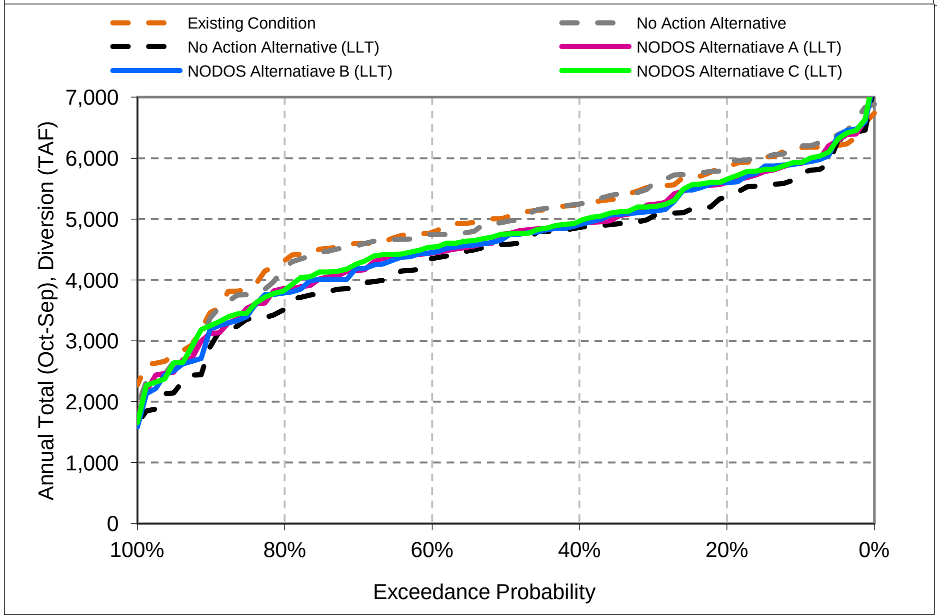


Figure 25B-48-1.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) ,
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

Table 25B-48-2.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP)
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

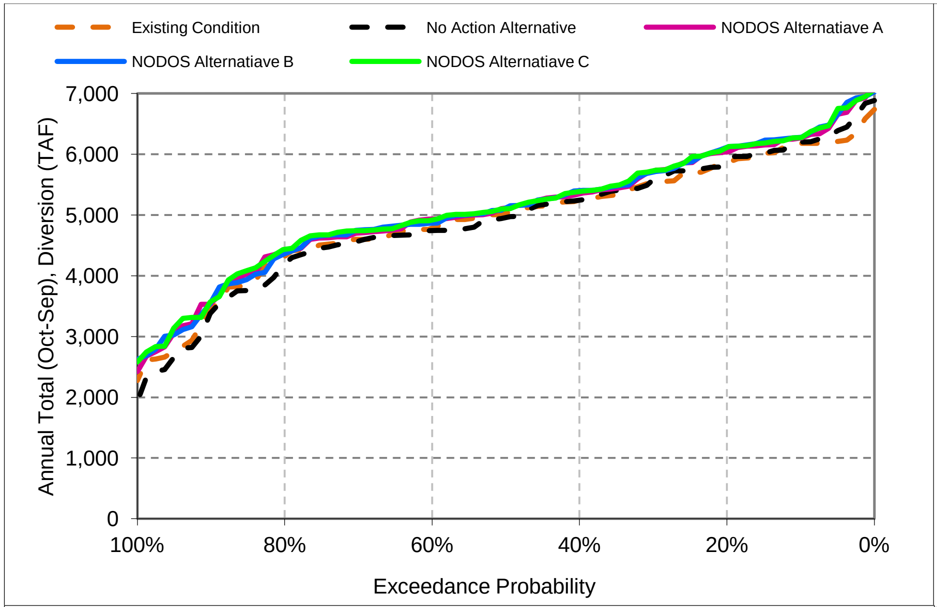
Long Term Average[1]

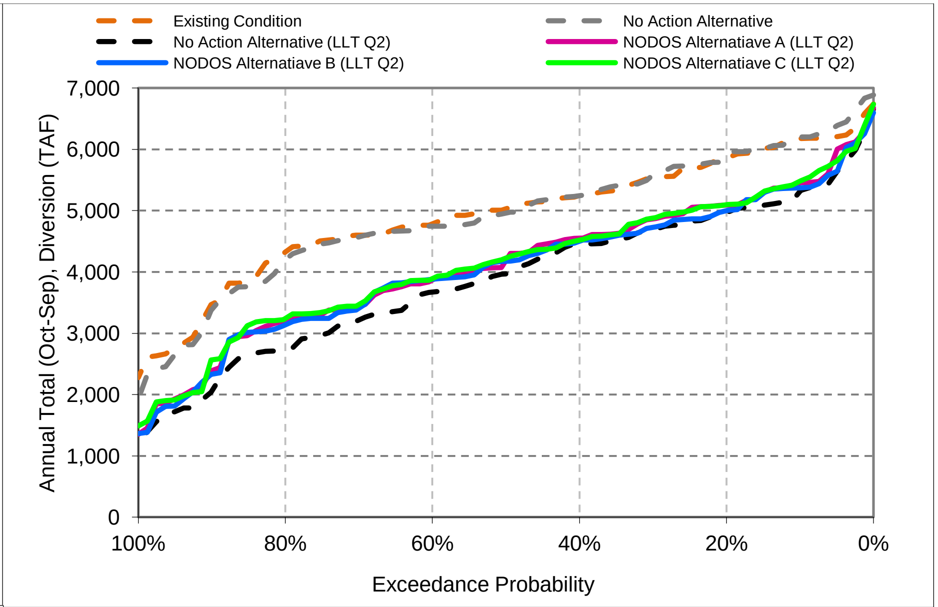
	Annual Total Oct-Sep			
	Current[2]		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	4,902	--	-1,014	+23
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	5,081	+178	+220	+183
NODOS Alternative B	5,091	+189	+169	+197
NODOS Alternative C	5,111	+209	+244	+225

Quartile Averages

	Annual Total Oct-Sep			
	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)				
Change in No Action Alternative:	6,164	--	-827	+123
Change in Alternative from No Action Alternative:				
NODOS Alternative A	6,324	+161	+161	+211
NODOS Alternative B	6,357	+193	+81	+224
NODOS Alternative C	6,353	+190	+168	+239
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	5,339	--	-884	+33
Change in Alternative from No Action Alternative:				
NODOS Alternative A	5,442	+103	+163	+72
NODOS Alternative B	5,452	+113	+74	+100
NODOS Alternative C	5,463	+124	+149	+110
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	4,700	--	-1,186	-77
Change in Alternative from No Action Alternative:				
NODOS Alternative A	4,850	+150	+250	+155
NODOS Alternative B	4,864	+164	+256	+196
NODOS Alternative C	4,880	+180	+299	+200
Lower (100%-75% exceedence)				
Change in No Action Alternative:	3,417	--	-1,159	+10
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,711	+294	+305	+287
NODOS Alternative B	3,698	+281	+264	+263
NODOS Alternative C	3,754	+337	+360	+343

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





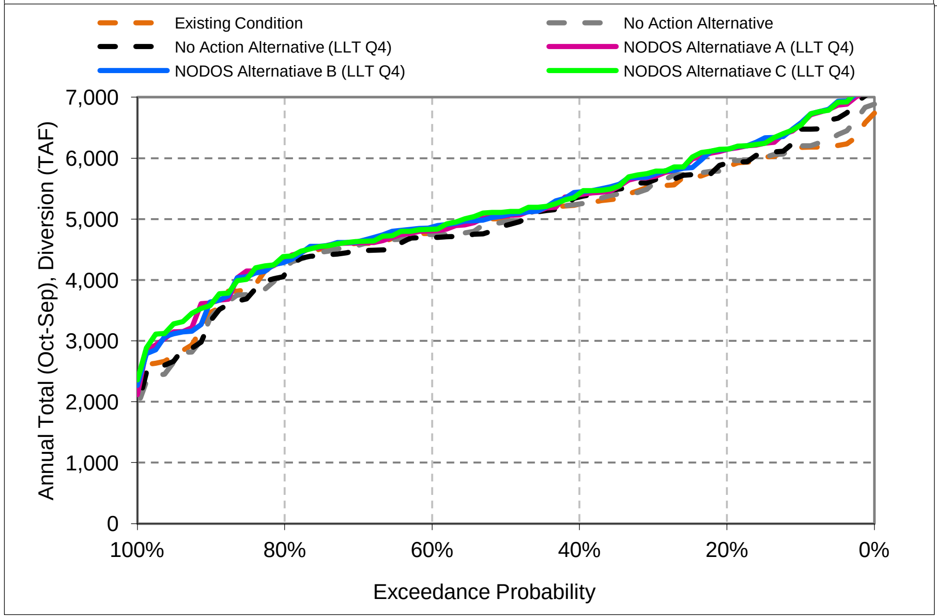


Figure 25B-48-2.
Total Banks Pumping Plant (SWP and CVP) and Jones Pumping Plant (CVP) ,
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

Table 25B-49-1.
Banks Pumping Plant (SWP and CVP)
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

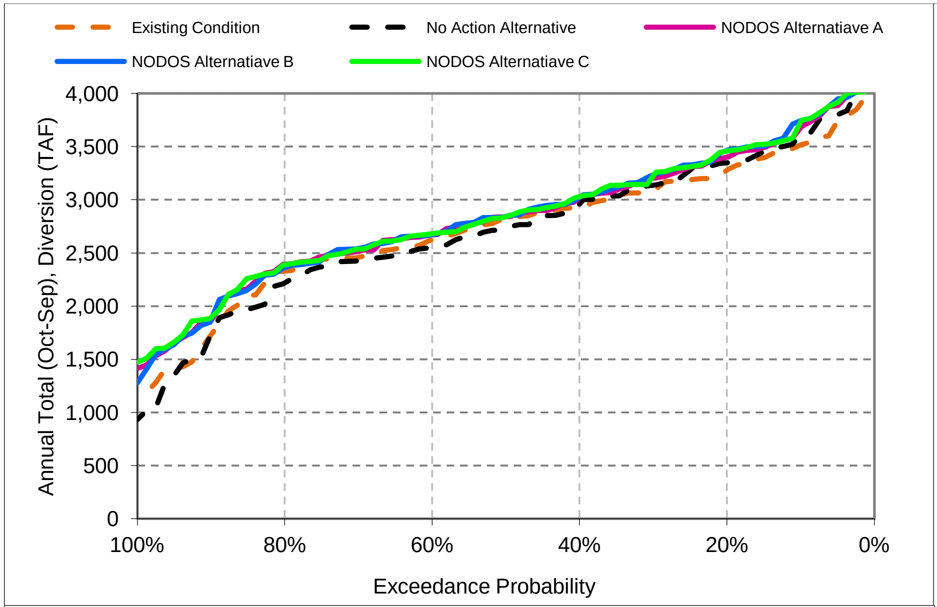
Long Term Average[1]

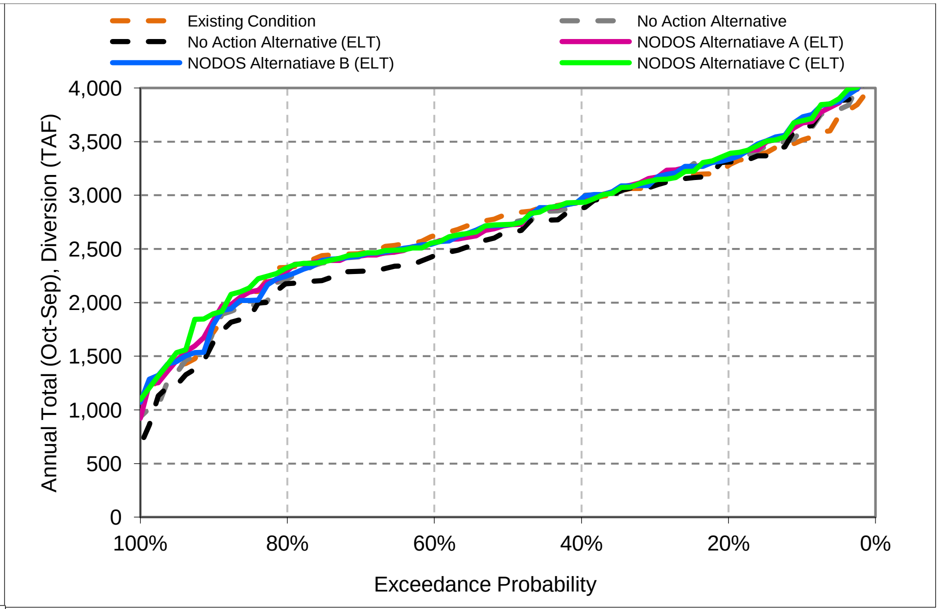
	Annual Total Oct-Sep			
	Current[2]		ELT	LLT
Change in No Action Alternative[3]:	2,723	--	-73	-233
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	2,844	+121	+112	+137
NODOS Alternative B	2,853	+130	+112	+134
NODOS Alternative C	2,857	+134	+131	+167

Quartile Averages

	Annual Total Oct-Sep			
	Current		ELT	LLT
Upper (25%-0% exceedence)				
Change in No Action Alternative:	3,603	--	-24	-206
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,666	+64	+59	+113
NODOS Alternative B	3,689	+86	+74	+112
NODOS Alternative C	3,677	+75	+77	+133
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	2,985	--	-51	-204
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,052	+67	+72	+82
NODOS Alternative B	3,072	+87	+68	+63
NODOS Alternative C	3,071	+85	+56	+66
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	2,536	--	-125	-249
Change in Alternative from No Action Alternative:				
NODOS Alternative A	2,651	+115	+121	+106
NODOS Alternative B	2,664	+128	+134	+121
NODOS Alternative C	2,650	+115	+137	+172
Lower (100%-75% exceedence)				
Change in No Action Alternative:	1,771	--	-94	-271
Change in Alternative from No Action Alternative:				
NODOS Alternative A	2,006	+235	+193	+242
NODOS Alternative B	1,989	+218	+171	+236
NODOS Alternative C	2,030	+259	+250	+292

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





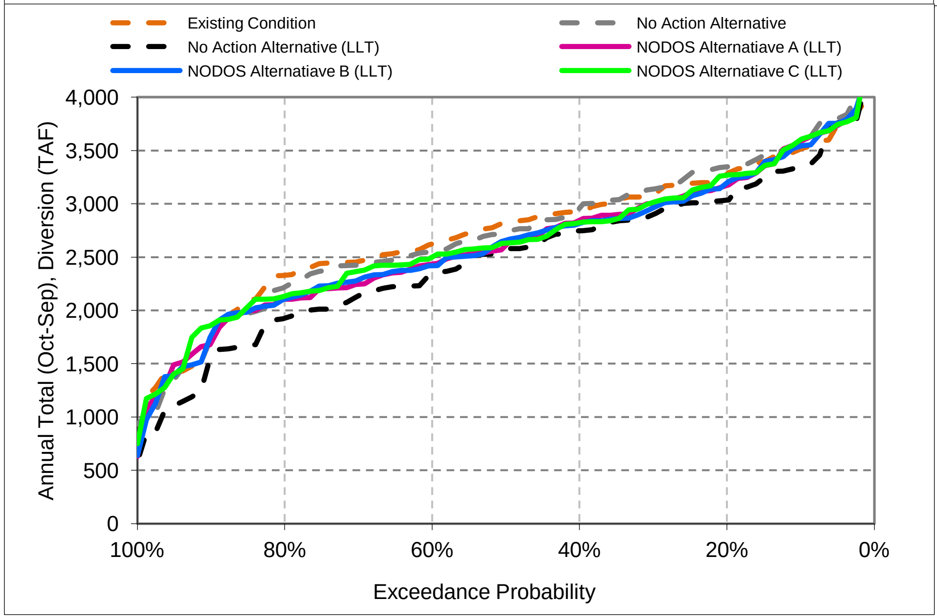


Figure 25B-49-1.
Banks Pumping Plant (SWP and CVP),
Annual Total (Oct-Sep), Diversion (TAF)
ELT and LLT trend

Table 25B-49-2.
Banks Pumping Plant (SWP and CVP)
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

Long Term Average[1]

	Annual Total Oct-Sep			
	Current[2]		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	2,723	--	-531	+29
Change in Alternative from No Action Alternative[4]:				
NODOS Alternative A	2,844	+121	+184	+137
NODOS Alternative B	2,853	+130	+175	+133
NODOS Alternative C	2,857	+134	+202	+154

Quartile Averages

	Annual Total Oct-Sep			
	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)				
Change in No Action Alternative:	3,603	--	-452	+64
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,666	+64	+104	+125
NODOS Alternative B	3,689	+86	+86	+122
NODOS Alternative C	3,677	+75	+94	+136
Above Median (50%-25% exceedence)				
Change in No Action Alternative:	2,985	--	-409	+66
Change in Alternative from No Action Alternative:				
NODOS Alternative A	3,052	+67	+101	+44
NODOS Alternative B	3,072	+87	+103	+65
NODOS Alternative C	3,071	+85	+97	+59
Below Median (75%-50% exceedence)				
Change in No Action Alternative:	2,536	--	-572	-2
Change in Alternative from No Action Alternative:				
NODOS Alternative A	2,651	+115	+232	+99
NODOS Alternative B	2,664	+128	+251	+120
NODOS Alternative C	2,650	+115	+265	+106
Lower (100%-75% exceedence)				
Change in No Action Alternative:	1,771	--	-685	-12
Change in Alternative from No Action Alternative:				
NODOS Alternative A	2,006	+235	+298	+275
NODOS Alternative B	1,989	+218	+262	+224
NODOS Alternative C	2,030	+259	+351	+309

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
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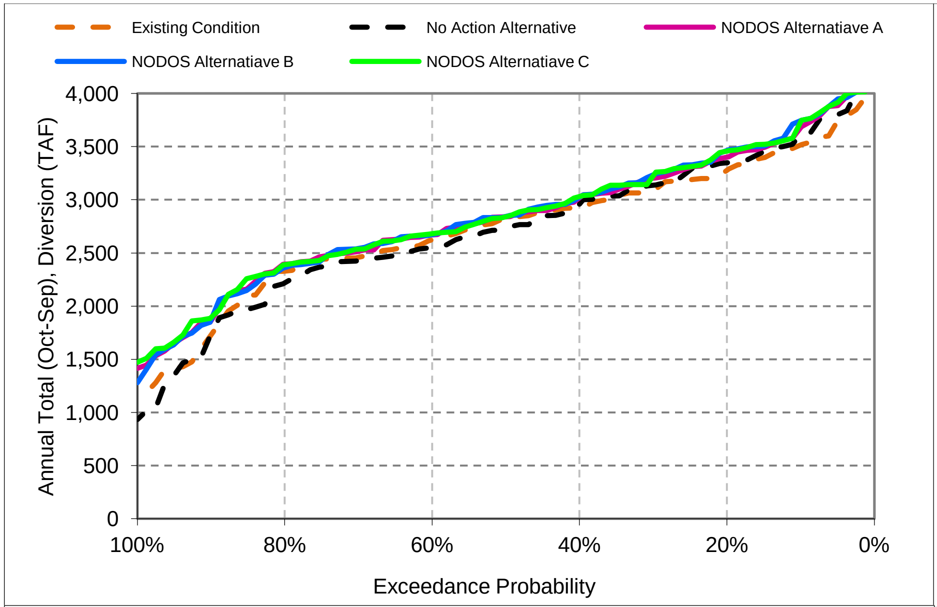
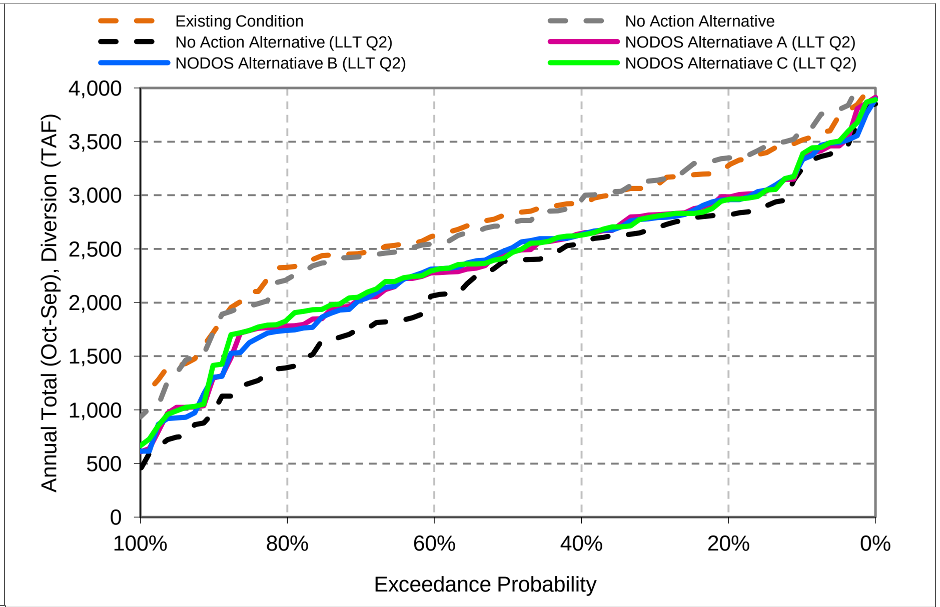




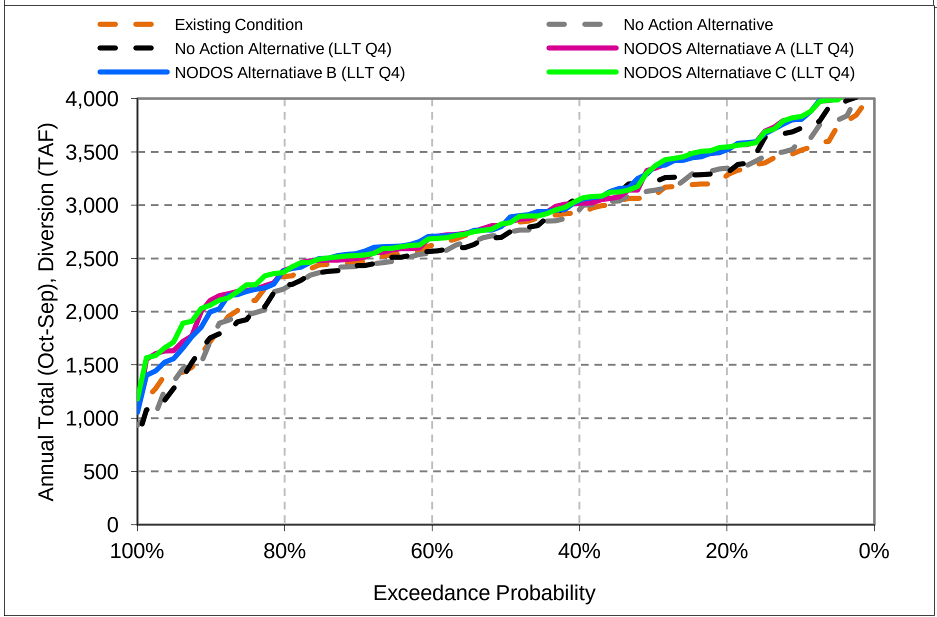


Figure 25B-49-2.
Banks Pumping Plant (SWP and CVP),
Annual Total (Oct-Sep), Diversion (TAF)
LLT Sensitivity

Table 25B-50-1.
X2
Monthly Position (KM)
ELT and LLT trend

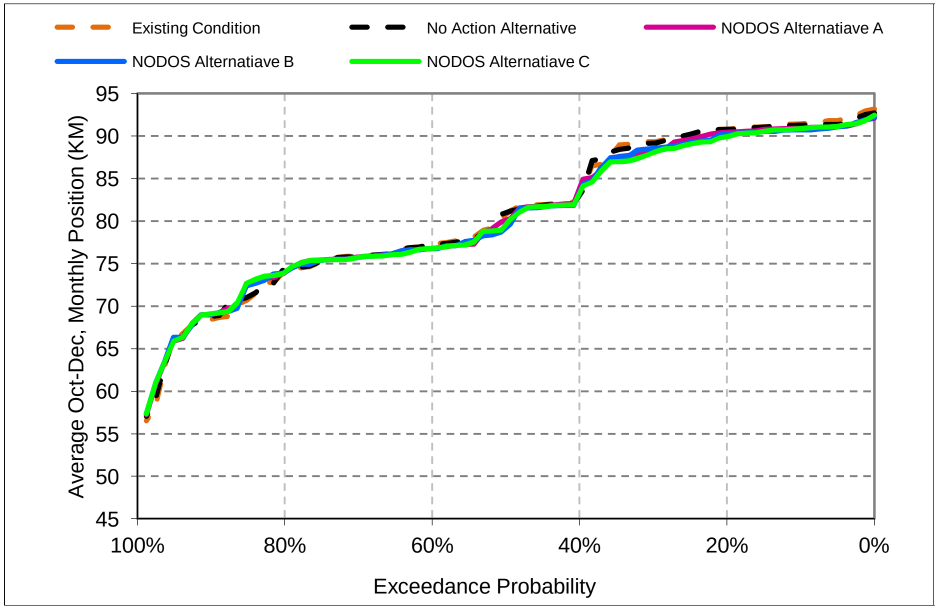
Long Term Average[1]

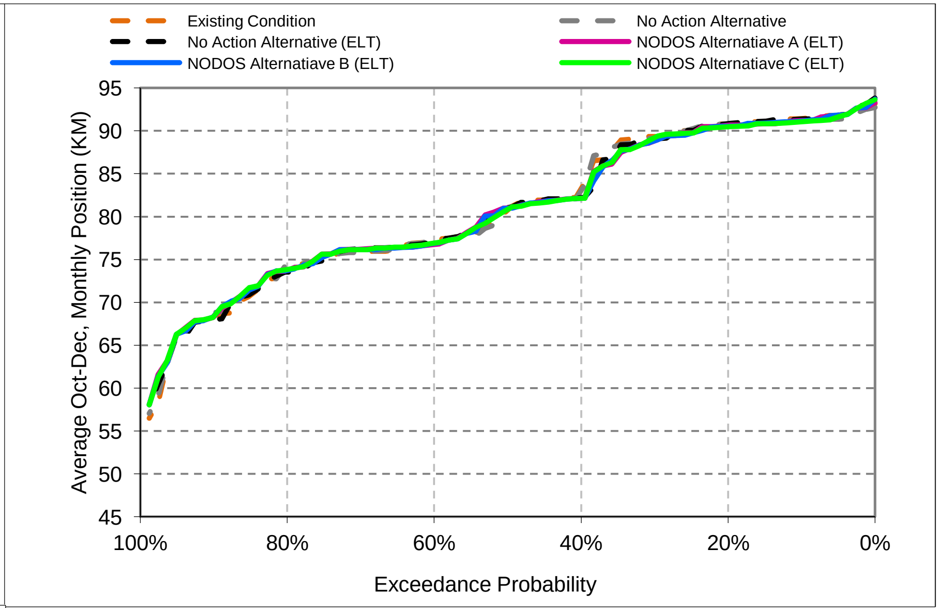
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	+81.0	--	-0.0	+0.6	+63.0	--	+0.7	+2.5	+68.8	--	+1.1	+3.1	+83.0	--	+0.0	+0.6
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	+80.8	-0.2	-0.0	-0.0	+63.8	+0.8	+0.9	+0.8	+68.8	+0.0	+0.0	+0.1	+81.9	-1.1	-1.1	-1.0
NODOS Alternative B	+80.7	-0.3	-0.1	-0.0	+63.6	+0.6	+0.7	+0.6	+68.8	+0.1	+0.0	+0.1	+81.8	-1.1	-1.2	-1.0
NODOS Alternative C	+80.6	-0.3	-0.0	-0.1	+63.9	+0.9	+0.9	+0.9	+68.8	+0.1	+0.0	+0.1	+81.7	-1.3	-1.4	-1.2

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	+91.2	--	+0.2	-0.5	+76.7	--	+0.8	+1.9	+80.2	--	+0.6	+1.3	+88.6	--	+0.1	+0.5
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+90.8	-0.4	-0.2	-0.3	+77.6	+0.9	+1.0	+0.9	+80.3	+0.1	+0.0	+0.0	+87.8	-0.8	-0.8	-0.7
NODOS Alternative B	+90.6	-0.6	-0.2	-0.1	+77.2	+0.5	+0.7	+0.7	+80.2	-0.1	-0.1	-0.0	+87.8	-0.8	-1.0	-0.6
NODOS Alternative C	+90.6	-0.6	-0.3	-0.3	+77.6	+0.9	+0.9	+0.9	+80.3	+0.0	+0.0	+0.0	+87.6	-1.0	-1.1	-0.8
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	+85.7	--	-0.3	+0.2	+67.7	--	+0.7	+2.1	+72.8	--	+1.5	+2.8	+86.0	--	+0.1	+0.4
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+85.2	-0.5	-0.2	-0.2	+69.1	+1.4	+1.7	+1.5	+72.8	-0.0	+0.0	+0.1	+84.4	-1.6	-1.4	-1.3
NODOS Alternative B	+85.1	-0.6	-0.2	-0.2	+68.6	+0.9	+1.1	+0.9	+72.9	+0.1	+0.0	+0.2	+84.4	-1.5	-1.4	-1.2
NODOS Alternative C	+84.8	-0.8	-0.1	-0.3	+69.2	+1.5	+1.7	+1.6	+72.8	+0.1	-0.1	+0.1	+84.0	-2.0	-1.9	-1.6
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	+77.0	--	+0.3	+1.1	+57.6	--	+0.7	+2.8	+65.7	--	+1.3	+3.8	+81.1	--	-0.6	-0.1
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+76.8	-0.2	-0.0	+0.1	+58.4	+0.8	+0.7	+0.7	+65.8	+0.1	+0.0	+0.0	+79.9	-1.2	-1.1	-1.0
NODOS Alternative B	+76.7	-0.3	-0.1	+0.0	+58.3	+0.7	+0.5	+0.5	+65.9	+0.2	+0.1	+0.2	+79.8	-1.4	-1.2	-1.1
NODOS Alternative C	+76.7	-0.3	-0.2	-0.1	+58.7	+1.1	+0.8	+0.8	+65.8	+0.1	+0.1	+0.1	+79.8	-1.3	-1.3	-1.2
Lower (100%-75% exceedence)																
Change in No Action Alternative:	+69.4	--	-0.2	+1.7	+50.0	--	+0.7	+3.2	+56.3	--	+0.9	+4.4	+76.3	--	+0.5	+1.6
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+69.7	+0.3	+0.4	+0.3	+50.2	+0.2	+0.2	+0.2	+56.3	-0.0	-0.1	+0.1	+75.5	-0.8	-1.2	-1.0
NODOS Alternative B	+69.7	+0.3	+0.3	+0.1	+50.2	+0.2	+0.3	+0.3	+56.5	+0.1	+0.2	+0.3	+75.4	-0.8	-1.3	-1.1
NODOS Alternative C	+69.8	+0.4	+0.4	+0.3	+50.2	+0.2	+0.2	+0.3	+56.4	+0.0	+0.0	+0.1	+75.4	-0.9	-1.3	-1.1

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





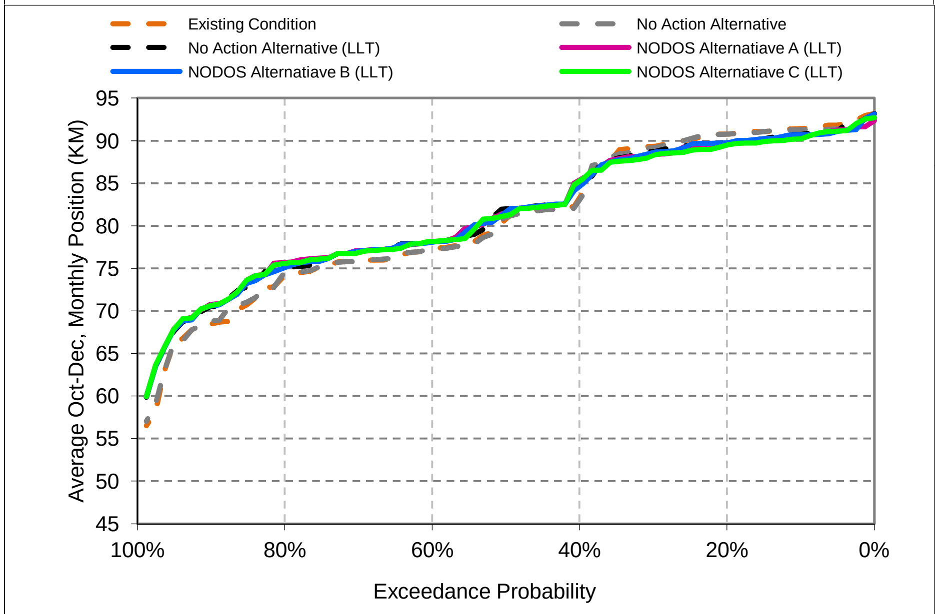


Figure 25B-50-1.
X2,
Average Oct-Dec, Monthly Position (KM)
ELT and LLT trend

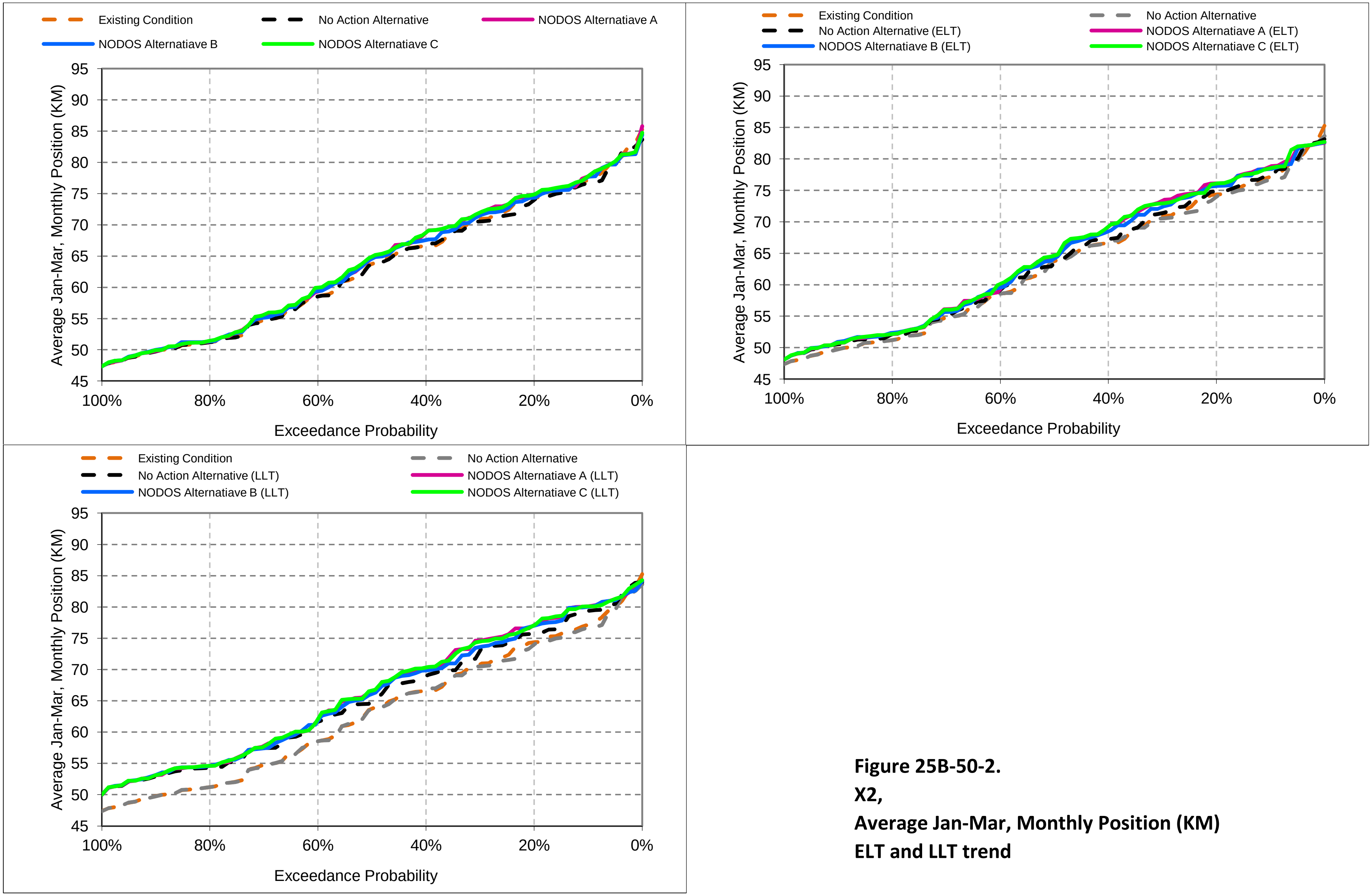
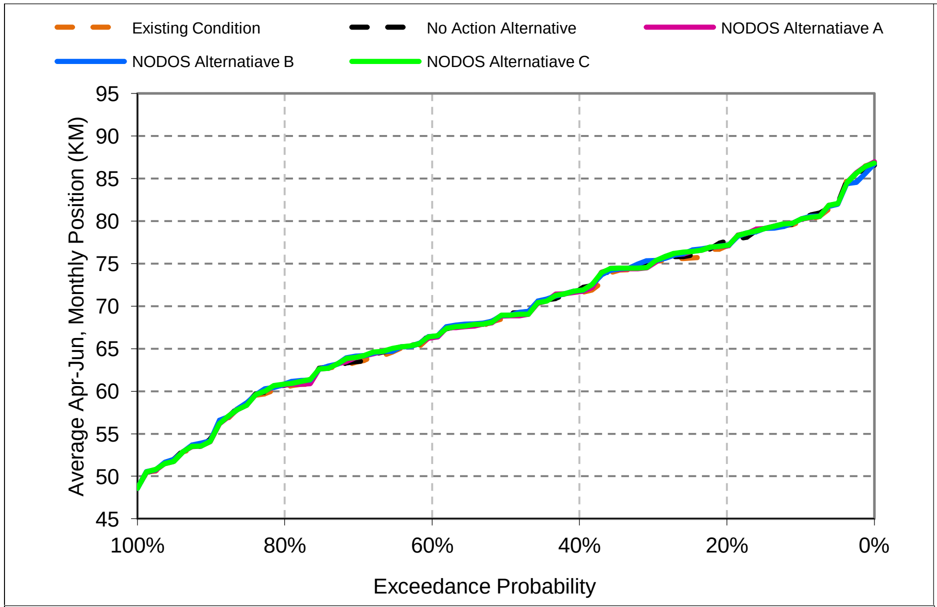
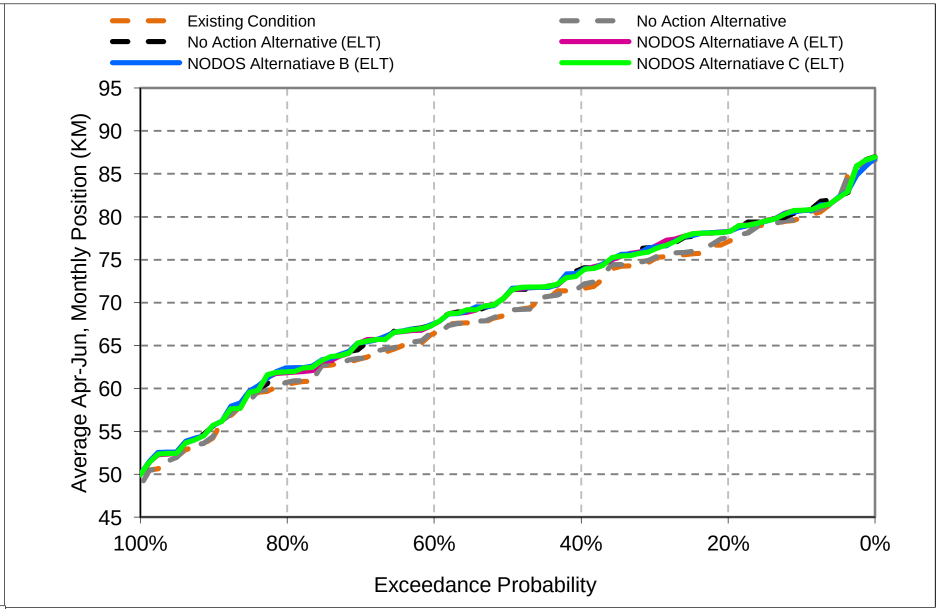


Figure 25B-50-2.
X2,
Average Jan-Mar, Monthly Position (KM)
ELT and LLT trend





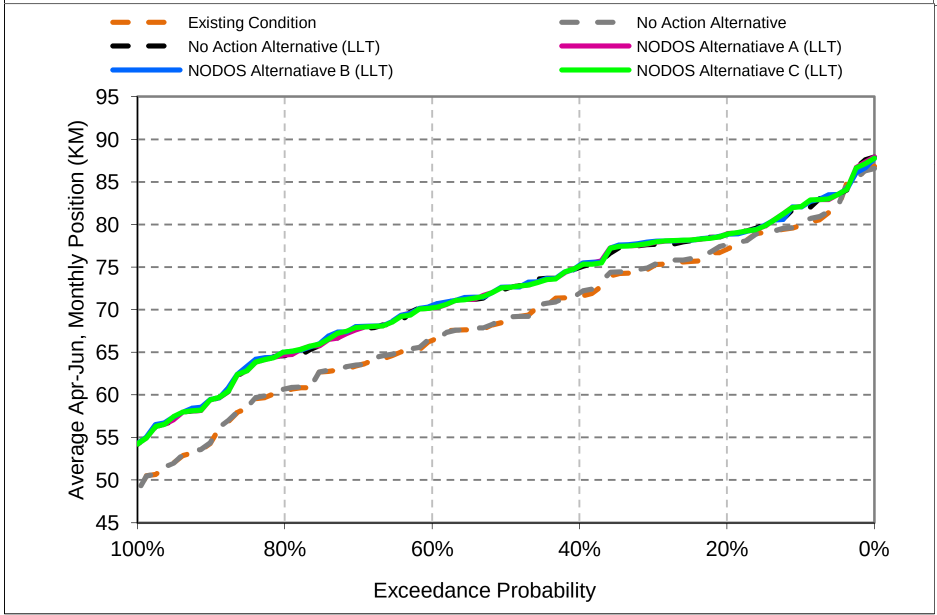
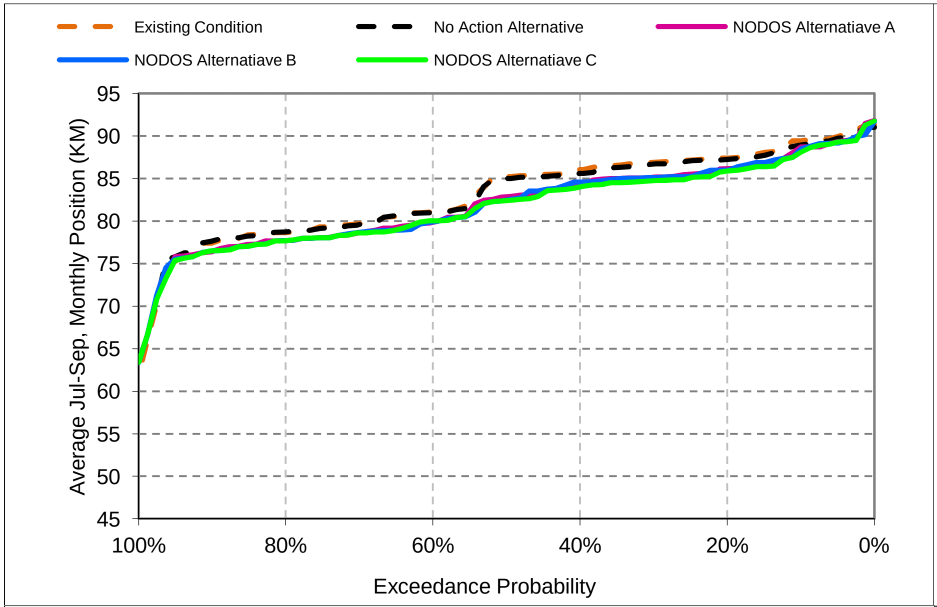
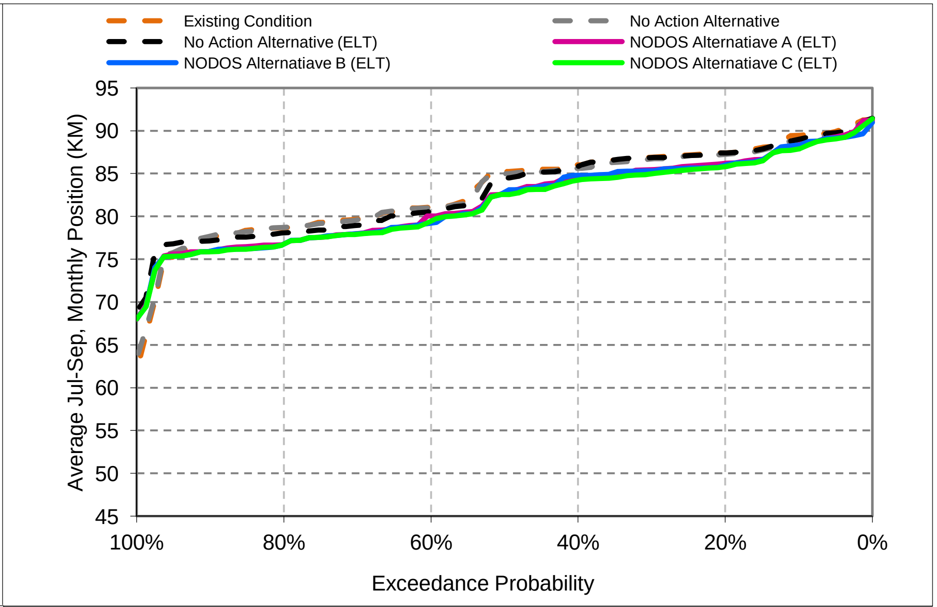


Figure 25B-50-3.
X2,
Average Apr-Jun, Monthly Position (KM)
ELT and LLT trend





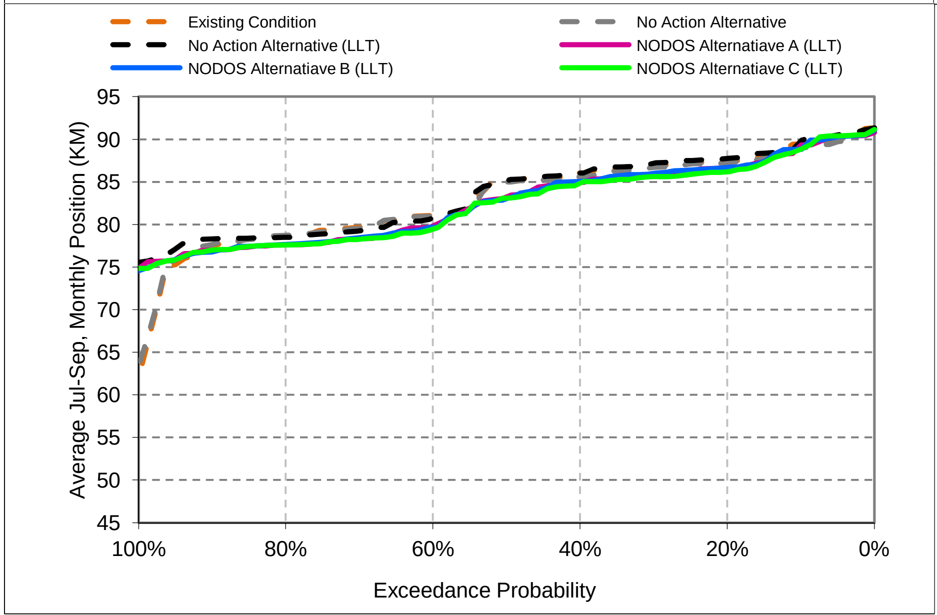


Figure 25B-50-4.
X2,
Average Jul-Sep, Monthly Position (KM)
ELT and LLT trend

Table 25B-50-2.
X2
Monthly Position (KM)
LLT Sensitivity

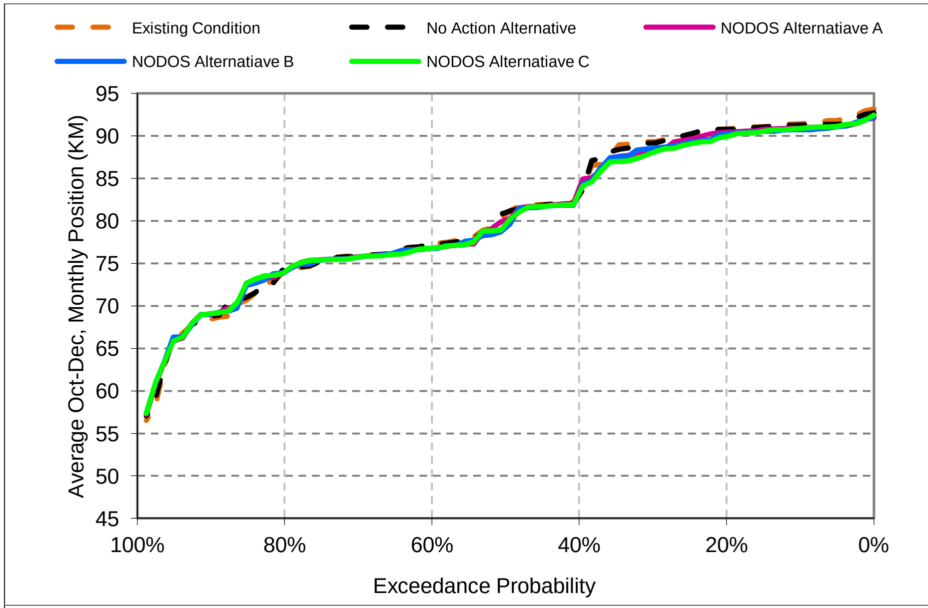
Long Term Average[1]

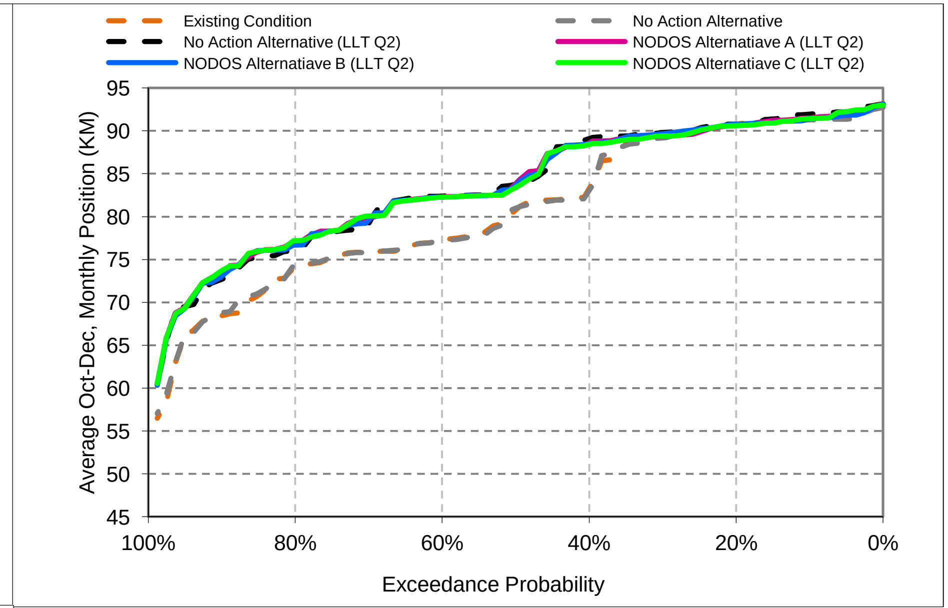
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	+81.0	--	+2.8	-1.7	+63.0	--	+4.2	+1.0	+68.8	--	+4.9	+0.9	+83.0	--	+2.4	-1.2
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	+80.8	-0.2	+0.0	-0.1	+63.8	+0.8	+0.9	+0.8	+68.8	+0.0	+0.1	+0.0	+81.9	-1.1	-0.7	-1.1
NODOS Alternative B	+80.7	-0.3	-0.0	-0.1	+63.6	+0.6	+0.6	+0.6	+68.8	+0.1	+0.2	+0.1	+81.8	-1.1	-0.7	-1.1
NODOS Alternative C	+80.6	-0.3	-0.0	-0.1	+63.9	+0.9	+1.0	+0.9	+68.8	+0.1	+0.1	+0.1	+81.7	-1.3	-0.8	-1.3

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	+91.2	--	+0.4	-1.5	+76.7	--	+3.2	+0.6	+80.2	--	+2.7	+0.1	+88.6	--	+1.7	-0.9
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+90.8	-0.4	-0.3	-0.6	+77.6	+0.9	+0.9	+1.1	+80.3	+0.1	+0.0	-0.0	+87.8	-0.8	-0.4	-1.0
NODOS Alternative B	+90.6	-0.6	-0.3	-0.5	+77.2	+0.5	+0.6	+0.8	+80.2	-0.1	-0.1	-0.1	+87.8	-0.8	-0.4	-1.0
NODOS Alternative C	+90.6	-0.6	-0.3	-0.6	+77.6	+0.9	+0.9	+1.2	+80.3	+0.0	-0.0	+0.0	+87.6	-1.0	-0.4	-1.2
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	+85.7	--	+2.7	-3.6	+67.7	--	+3.7	+0.2	+72.8	--	+4.5	+0.6	+86.0	--	+2.2	-2.4
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+85.2	-0.5	-0.1	-0.4	+69.1	+1.4	+1.6	+1.4	+72.8	-0.0	+0.2	+0.0	+84.4	-1.6	-0.6	-1.4
NODOS Alternative B	+85.1	-0.6	-0.1	-0.4	+68.6	+0.9	+1.0	+1.1	+72.9	+0.1	+0.3	+0.1	+84.4	-1.5	-0.8	-1.4
NODOS Alternative C	+84.8	-0.8	-0.3	-0.5	+69.2	+1.5	+1.6	+1.5	+72.8	+0.1	+0.2	+0.0	+84.0	-2.0	-0.9	-1.7
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	+77.0	--	+4.5	-0.6	+57.6	--	+5.1	+1.1	+65.7	--	+6.1	+1.3	+81.1	--	+2.8	-1.6
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+76.8	-0.2	-0.1	+0.2	+58.4	+0.8	+0.9	+0.6	+65.8	+0.1	+0.2	-0.0	+79.9	-1.2	-0.8	-1.0
NODOS Alternative B	+76.7	-0.3	-0.1	+0.0	+58.3	+0.7	+0.7	+0.5	+65.9	+0.2	+0.4	+0.2	+79.8	-1.4	-0.7	-1.1
NODOS Alternative C	+76.7	-0.3	-0.1	+0.1	+58.7	+1.1	+1.0	+0.7	+65.8	+0.1	+0.2	+0.0	+79.8	-1.3	-1.0	-1.3
Lower (100%-75% exceedence)																
Change in No Action Alternative:	+69.4	--	+3.6	-1.1	+50.0	--	+4.7	+2.3	+56.3	--	+6.6	+1.8	+76.3	--	+2.9	+0.2
Change in Alternative from No Action Alternative:																
NODOS Alternative A	+69.7	+0.3	+0.5	+0.5	+50.2	+0.2	+0.4	+0.1	+56.3	-0.0	+0.0	+0.1	+75.5	-0.8	-0.8	-0.8
NODOS Alternative B	+69.7	+0.3	+0.4	+0.4	+50.2	+0.2	+0.3	+0.2	+56.5	+0.1	+0.2	+0.2	+75.4	-0.8	-0.9	-0.8
NODOS Alternative C	+69.8	+0.4	+0.5	+0.5	+50.2	+0.2	+0.5	+0.1	+56.4	+0.0	+0.1	+0.2	+75.4	-0.9	-1.0	-0.9

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





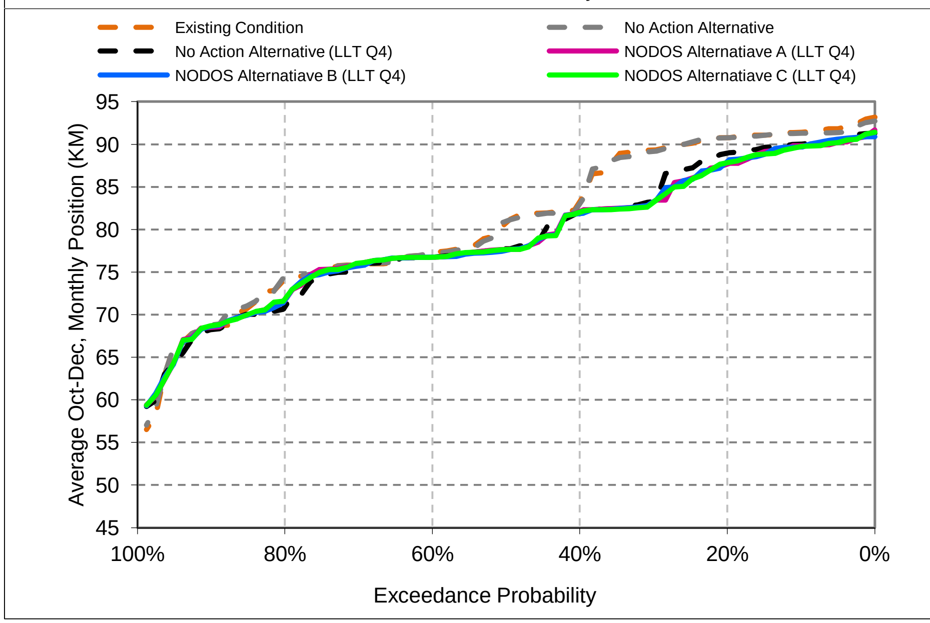


Figure 25B-50-5.
X2,
Average Oct-Dec, Monthly Position (KM)
LLT Sensitivity

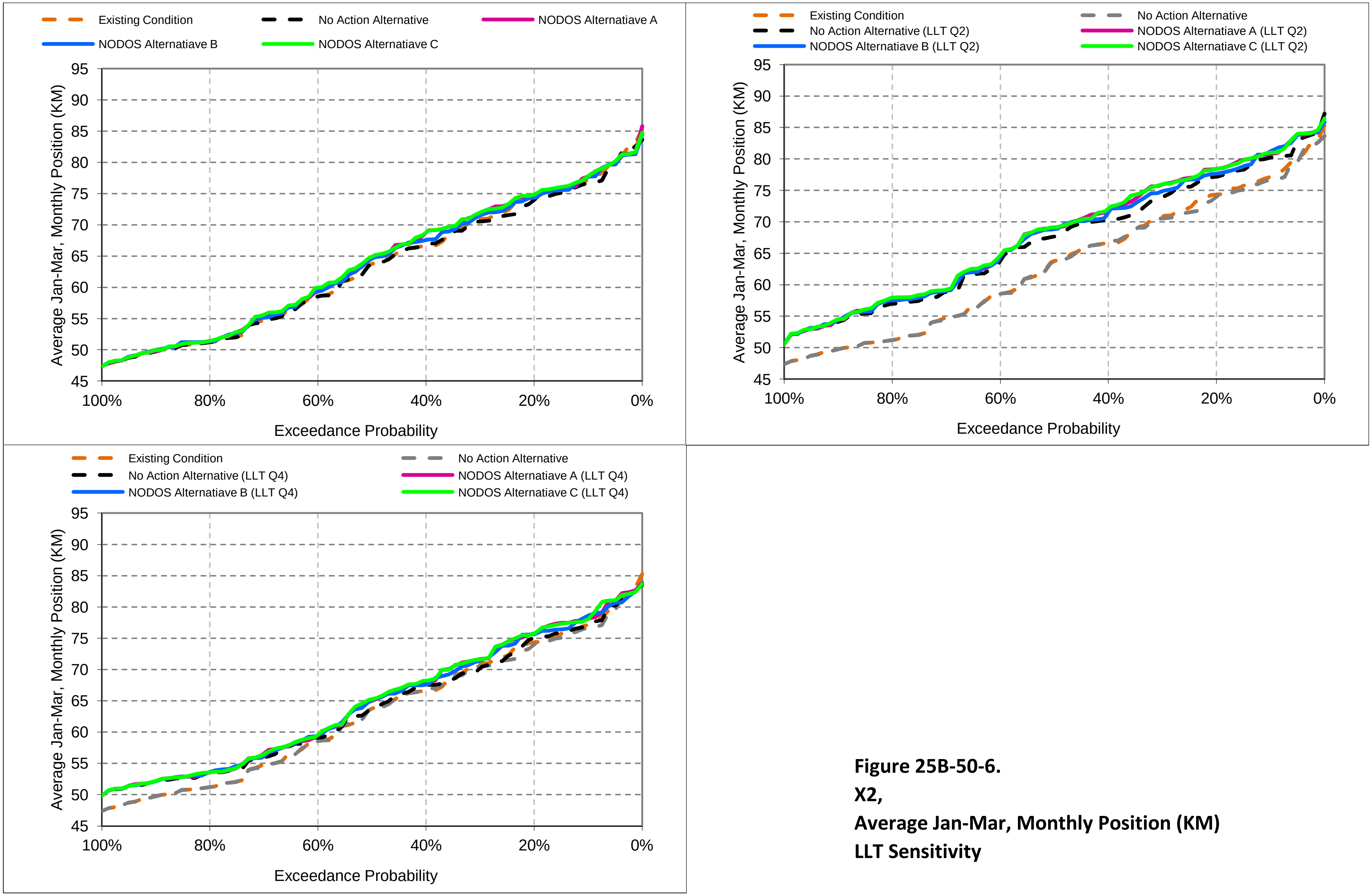
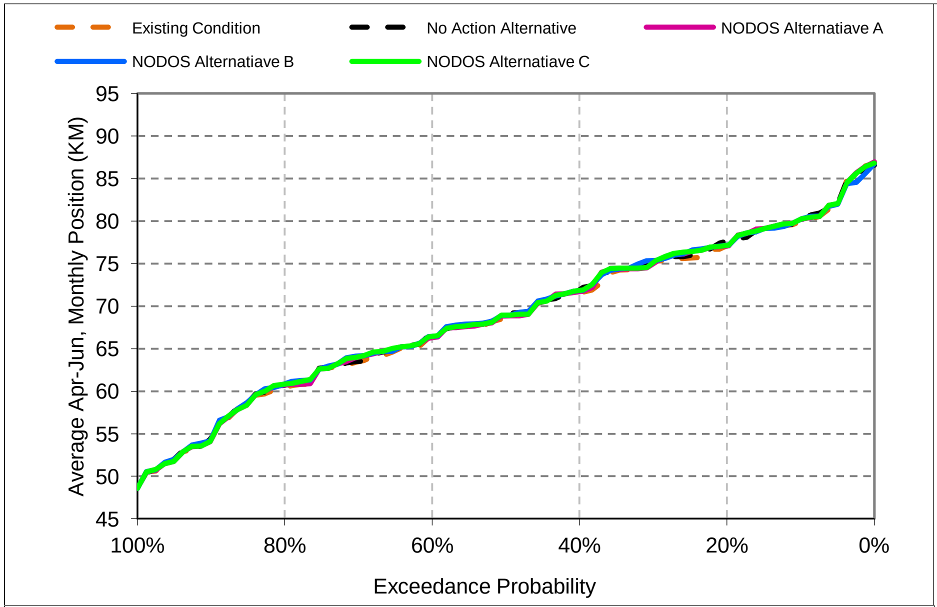
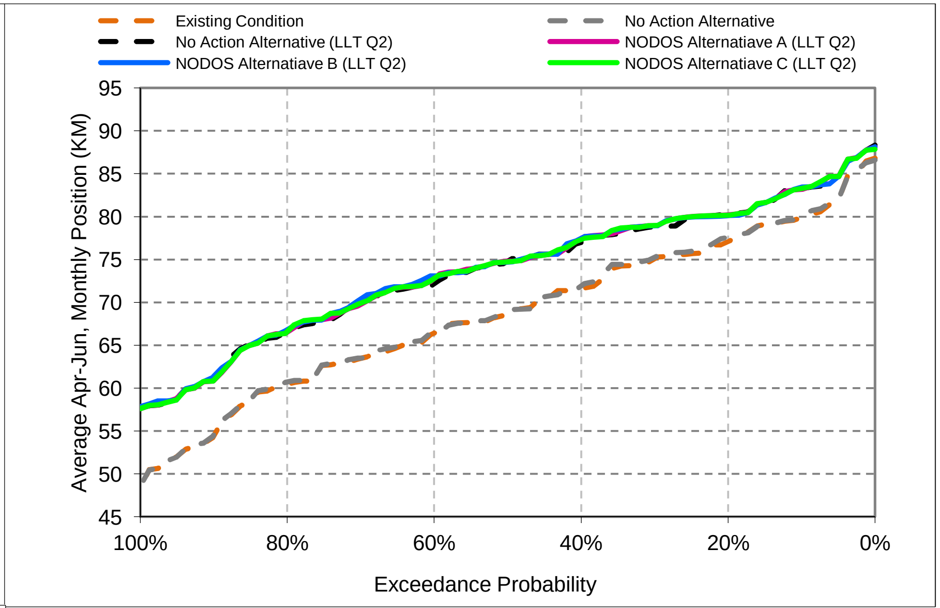


Figure 25B-50-6.
X2,
Average Jan-Mar, Monthly Position (KM)
LLT Sensitivity





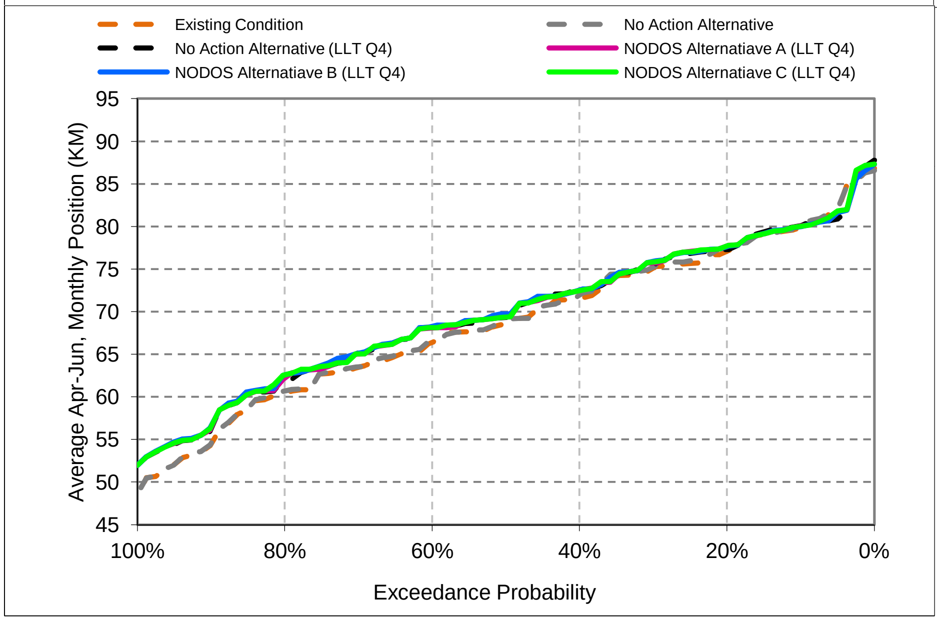
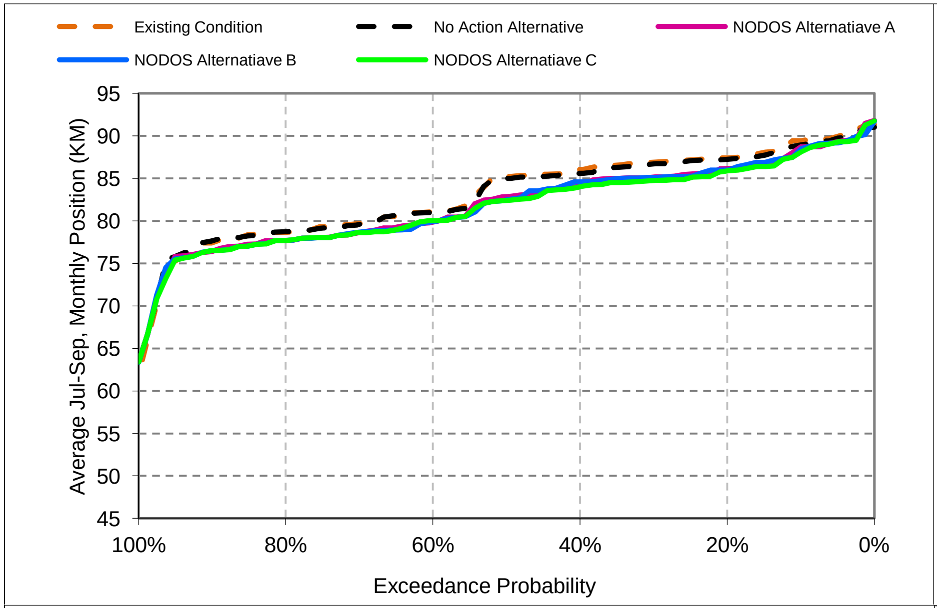
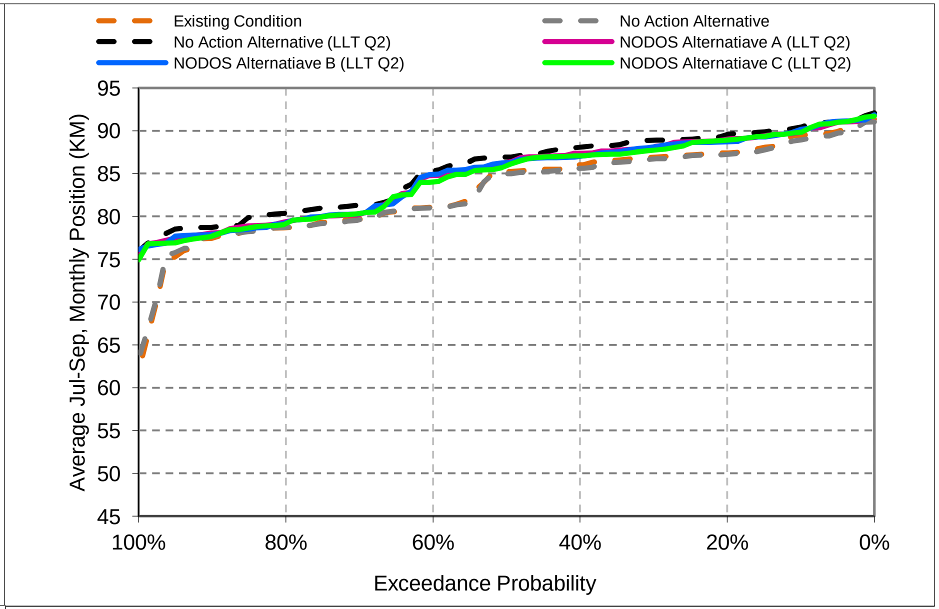


Figure 25B-50-7.
X2,
Average Apr-Jun, Monthly Position (KM)
LLT Sensitivity





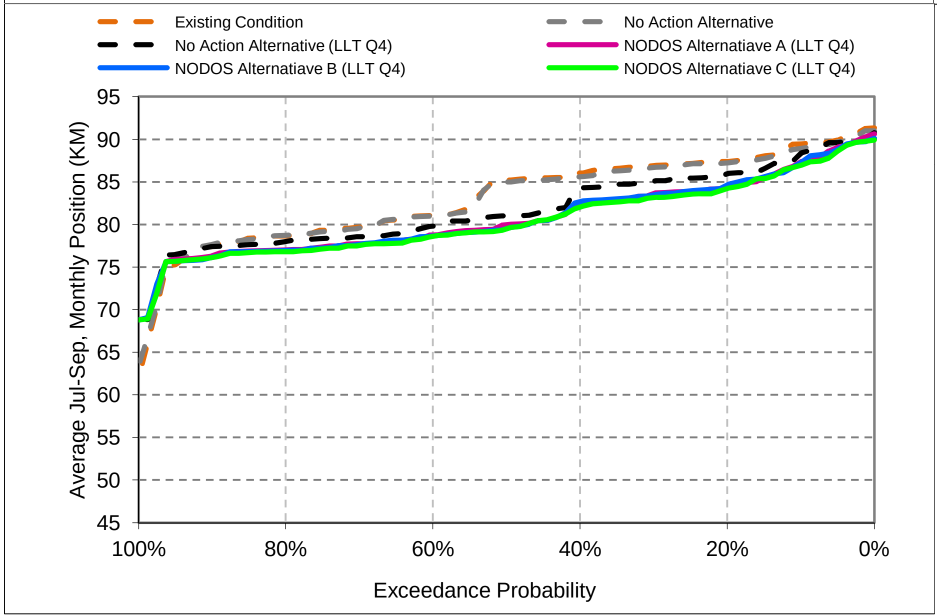


Figure 25B-50-8.
X2,
Average Jul-Sep, Monthly Position (KM)
LLT Sensitivity

Table 25B-51-1.
Old River at Rock Slough
Monthly EC (UMHOS/CM)
ELT and LLT trend

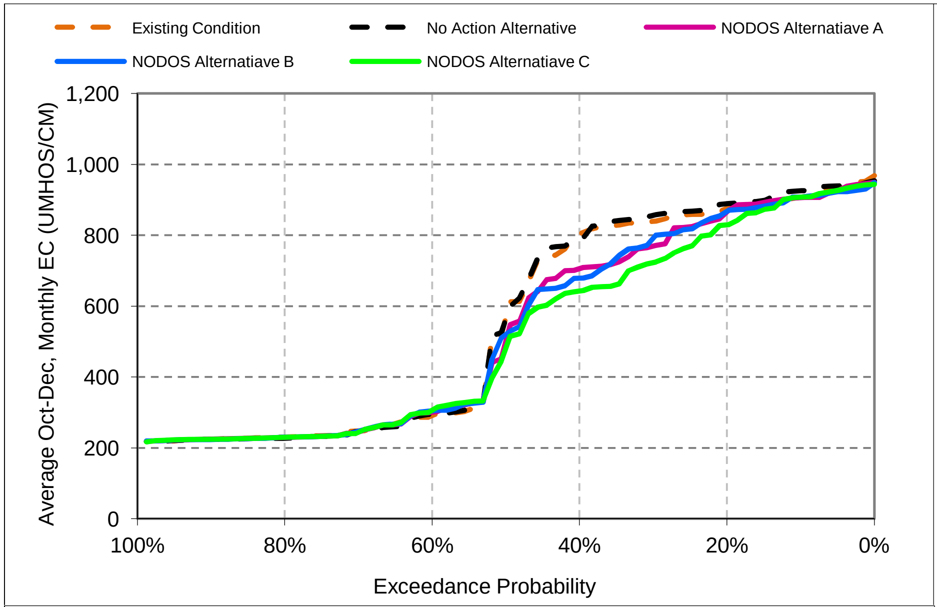
Long Term Average[1]

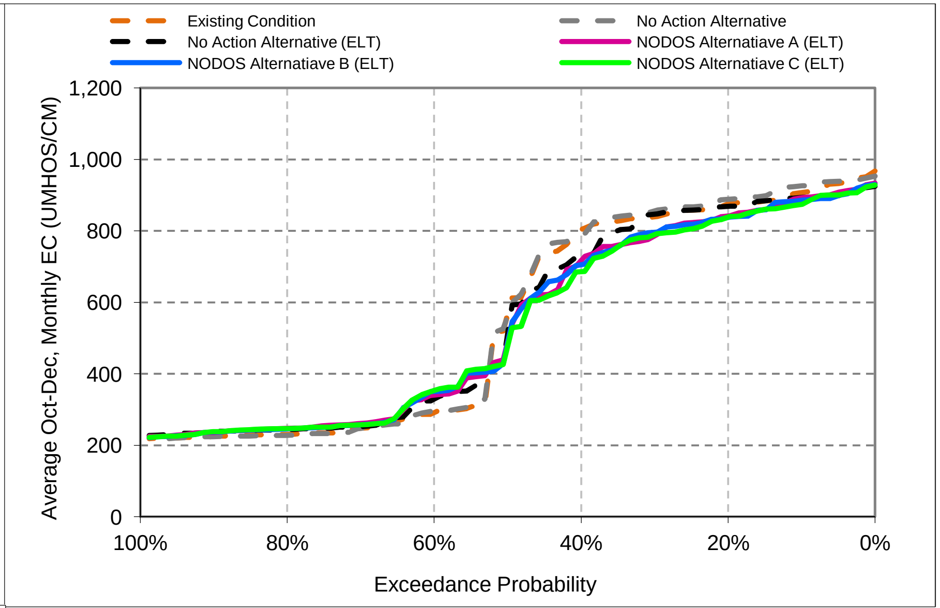
	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Change in No Action Alternative[3]:	562	--	-9	+37	359	--	+35	+52	332	--	-13	-22	425	--	+47	+87
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	536	-25	-10	-15	355	-4	+5	+5	332	+0	+0	+2	387	-38	-26	-20
NODOS Alternative B	534	-28	-10	-14	352	-7	+2	+4	332	+0	-0	+1	384	-40	-35	-27
NODOS Alternative C	519	-43	-14	-15	355	-4	+5	+6	332	+1	-0	+2	378	-47	-34	-26

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT	Current		ELT	LLT
Upper (25%-0% exceedence)																
Change in No Action Alternative:	913	--	-25	+12	497	--	+32	+69	388	--	-19	-4	612	--	+30	+55
Change in Alternative from No Action Alternative:																
NODOS Alternative A	896	-17	-12	-26	478	-19	-7	-16	388	-0	-2	+1	563	-50	-16	+14
NODOS Alternative B	891	-21	-16	-19	475	-22	-7	-7	385	-3	-2	-1	559	-53	-23	+9
NODOS Alternative C	880	-32	-19	-22	476	-21	-6	-2	387	-1	-2	+2	551	-61	-20	+12
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	792	--	-41	+5	384	--	+22	+47	345	--	-18	-29	489	--	+30	+95
Change in Alternative from No Action Alternative:																
NODOS Alternative A	708	-84	-36	-30	381	-3	+8	+17	345	-1	+2	+2	419	-70	-36	-47
NODOS Alternative B	700	-92	-34	-24	376	-8	+4	+9	346	+0	+1	+2	417	-73	-54	-60
NODOS Alternative C	654	-138	-51	-30	382	-2	+10	+10	345	-0	+2	+3	403	-86	-56	-61
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	299	--	+16	+95	301	--	+49	+59	318	--	-8	-27	337	--	+75	+108
Change in Alternative from No Action Alternative:																
NODOS Alternative A	297	-2	+9	+2	302	+1	+12	+17	319	+1	+0	+3	308	-29	-34	-28
NODOS Alternative B	301	+2	+10	-6	299	-2	+9	+12	319	+1	+0	+2	306	-31	-37	-30
NODOS Alternative C	297	-2	+13	-1	302	+0	+12	+14	319	+1	-0	+2	304	-33	-40	-31
Lower (100%-75% exceedence)																
Change in No Action Alternative:	225	--	+14	+38	254	--	+35	+35	275	--	-6	-28	259	--	+54	+90
Change in Alternative from No Action Alternative:																
NODOS Alternative A	226	+1	+0	-4	260	+6	+6	+3	276	+1	+0	+1	254	-6	-18	-21
NODOS Alternative B	226	+1	-1	-5	257	+3	+4	+0	278	+3	+1	+1	253	-6	-28	-28
NODOS Alternative C	226	+1	-0	-5	260	+6	+6	+3	277	+2	+0	+0	252	-7	-21	-25

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
3 Values are for No Action Alternative and change in No Action Alternative due to change in Climate and Sea Level scenario
4 Values are for NODOS Alternative and change in Alternative from No Action Alternative within each Climate and Sea Level scenario





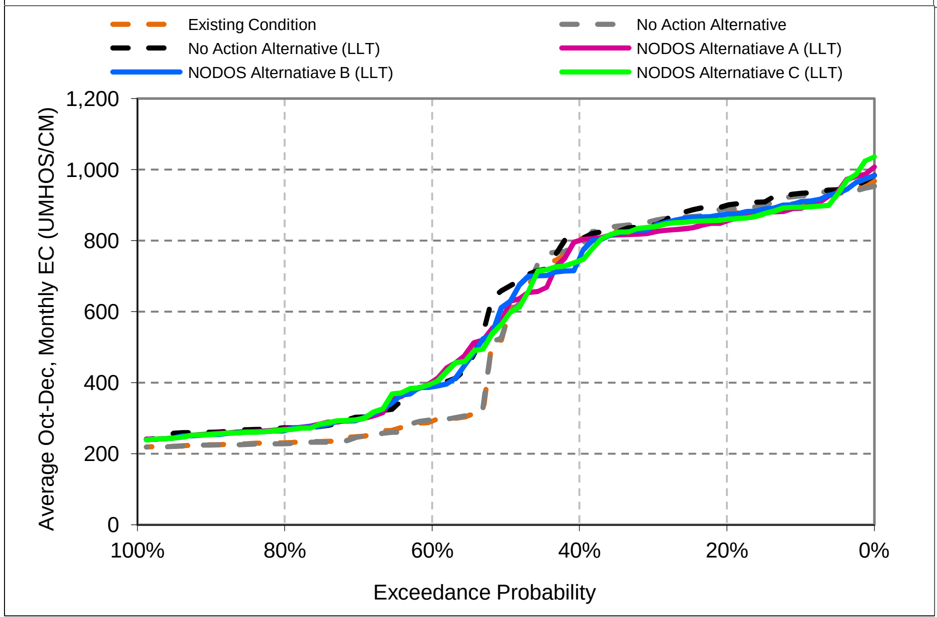
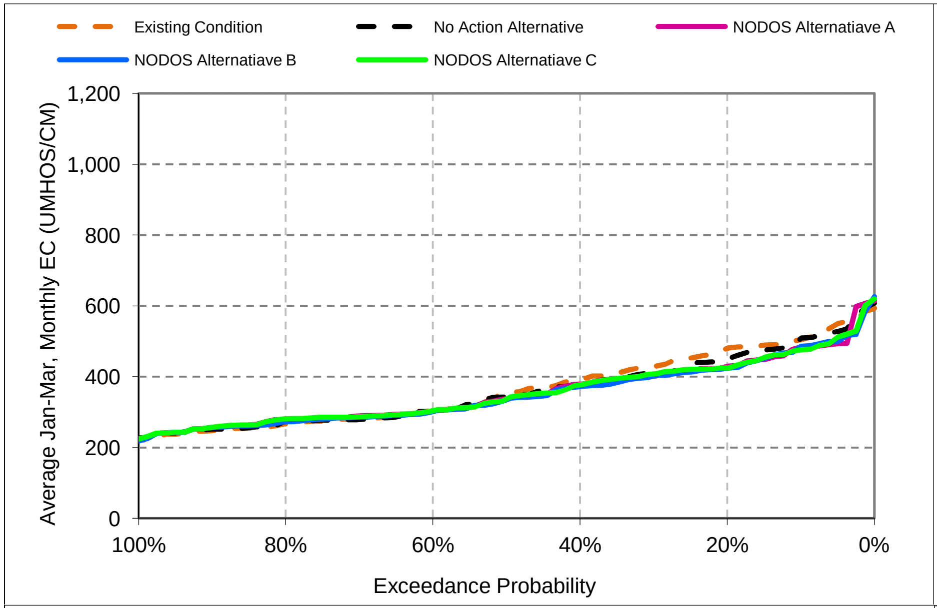
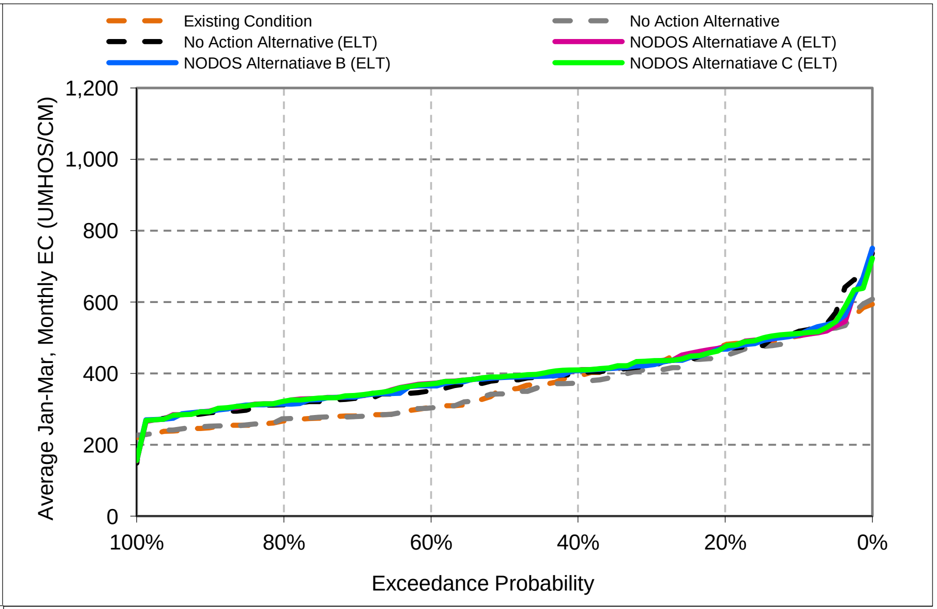


Figure 25B-51-1.
Old River at Rock Slough,
Average Oct-Dec, Monthly EC (UMHOS/CM)
ELT and LLT trend





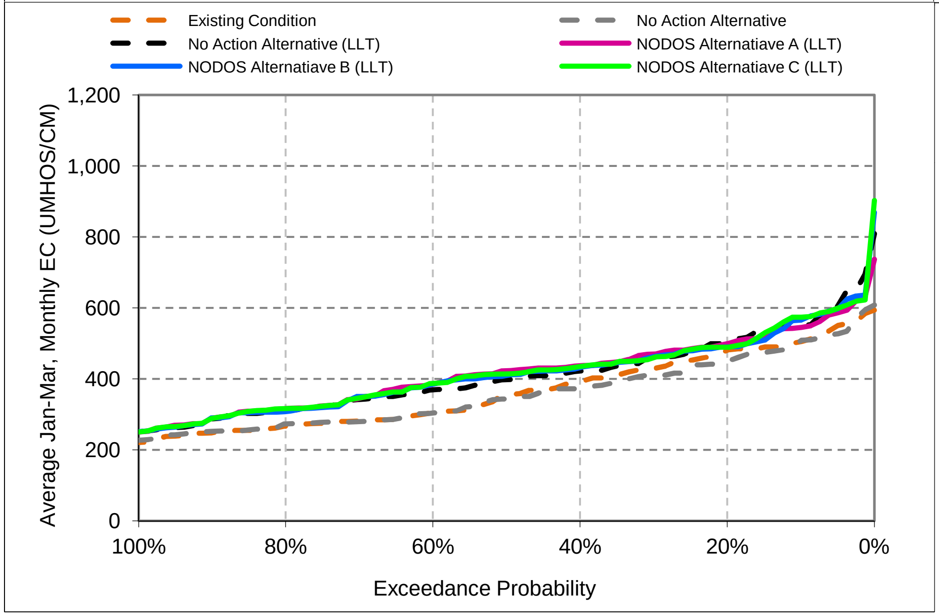


Figure 25B-51-2.
Old River at Rock Slough,
Average Jan-Mar, Monthly EC (UMHOS/CM)
ELT and LLT trend

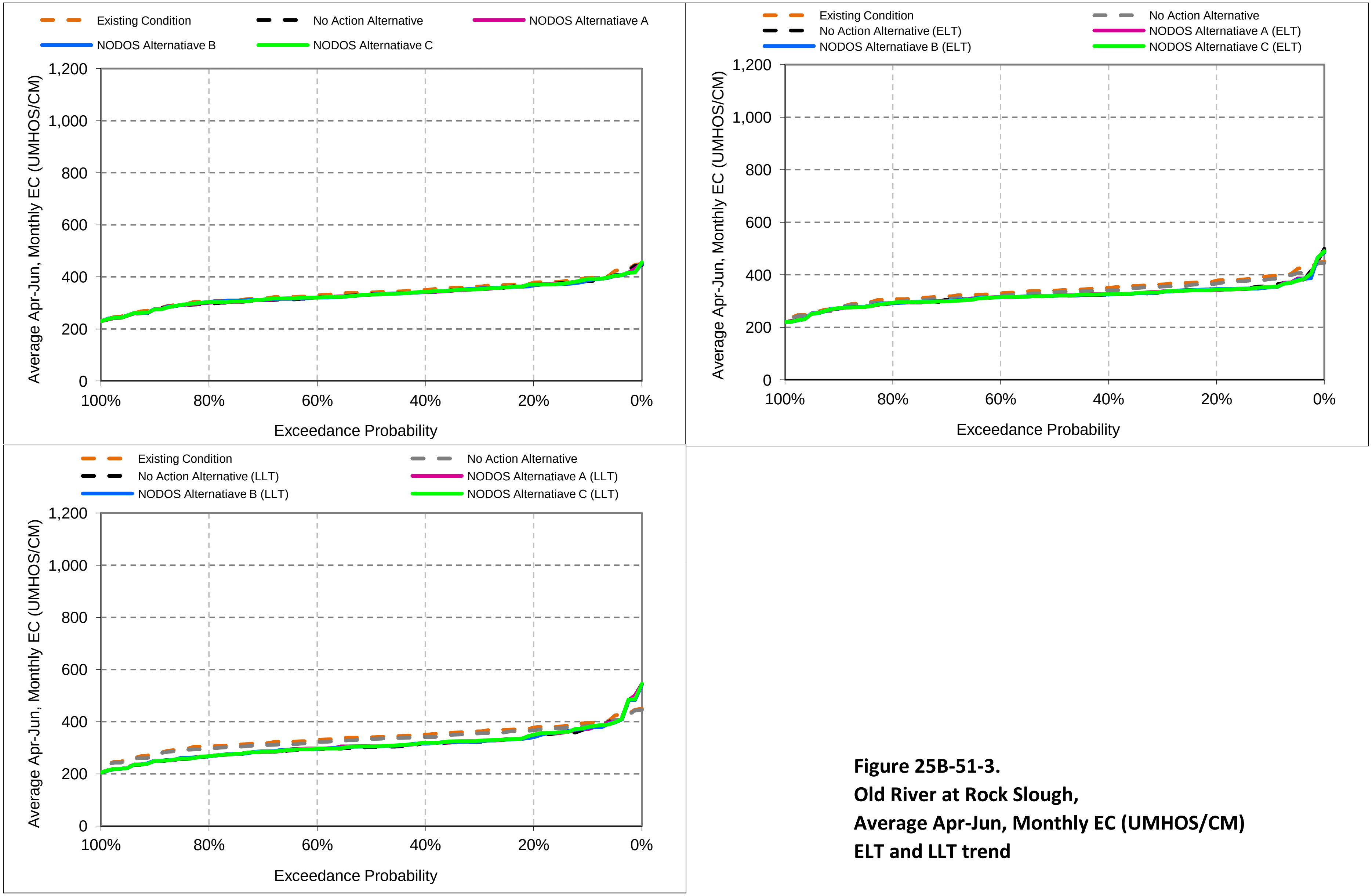
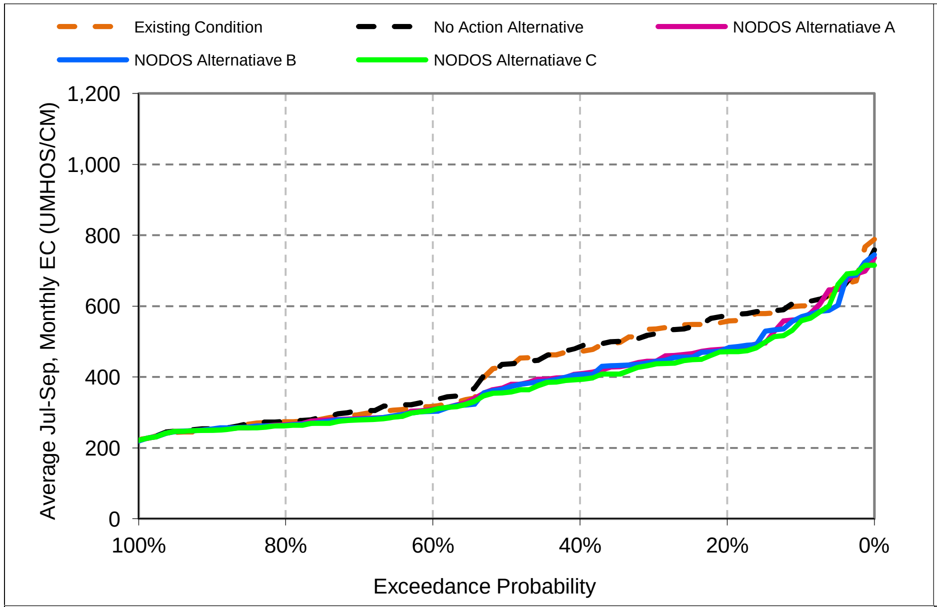
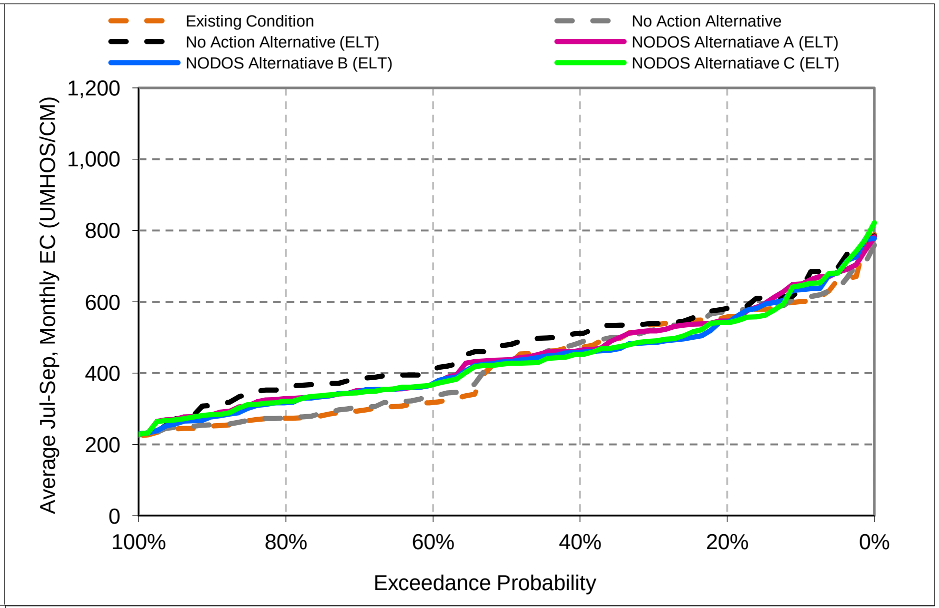


Figure 25B-51-3.
Old River at Rock Slough,
Average Apr-Jun, Monthly EC (UMHOS/CM)
ELT and LLT trend





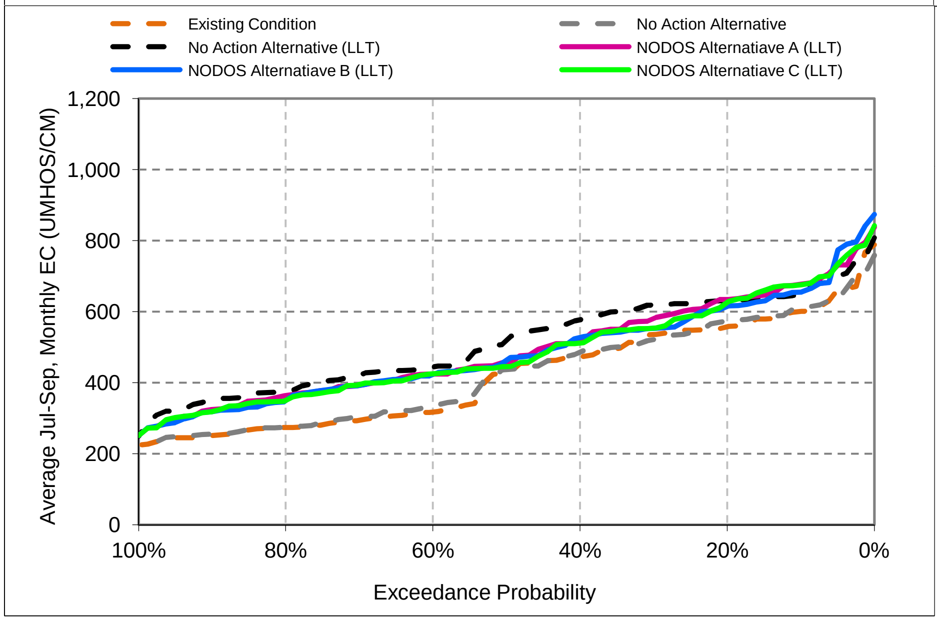


Figure 25B-51-4.
Old River at Rock Slough,
Average Jul-Sep, Monthly EC (UMHOS/CM)
ELT and LLT trend

Table 25B-51-2.
Old River at Rock Slough
Monthly EC (UMHOS/CM)
LLT Sensitivity

Long Term Average[1]

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current[2]		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Change in No Action Alternative[3]:	562	--	+117	-42	359	--	+82	+32	332	--	-6	-33	425	--	+114	+45
Change in Alternative from No Action Alternative[4]:																
NODOS Alternative A	536	-25	-7	-15	355	-4	+3	+6	332	+0	-1	+1	387	-38	-9	-20
NODOS Alternative B	534	-28	-11	-10	352	-7	-2	+3	332	+0	-2	+1	384	-40	-24	-27
NODOS Alternative C	519	-43	-10	-18	355	-4	-0	+5	332	+1	-1	+1	378	-47	-14	-31

Quartile Averages

	Average Oct-Dec				Average Jan-Mar				Average Apr-Jun				Average Jul-Sep			
	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4	Current		LLT Q2	LLT Q4
Upper (25%-0% exceedence)																
Change in No Action Alternative:	913	--	+66	-6	497	--	+116	+36	388	--	+23	-20	612	--	+95	+43
Change in Alternative from No Action Alternative:																
NODOS Alternative A	896	-17	-25	-31	478	-19	-13	+4	388	-0	-3	+1	563	-50	+7	-12
NODOS Alternative B	891	-21	-26	-22	475	-22	-16	-0	385	-3	-6	+0	559	-53	-20	-22
NODOS Alternative C	880	-32	-22	-31	476	-21	-19	+2	387	-1	-5	+1	551	-61	+9	-32
Above Median (50%-25% exceedence)																
Change in No Action Alternative:	792	--	+65	-191	384	--	+80	+26	345	--	-18	-34	489	--	+105	+9
Change in Alternative from No Action Alternative:																
NODOS Alternative A	708	-84	-3	-30	381	-3	+8	+12	345	-1	+1	+2	419	-70	-13	-29
NODOS Alternative B	700	-92	-9	-20	376	-8	+7	+8	346	+0	-2	+0	417	-73	-18	-35
NODOS Alternative C	654	-138	-8	-39	382	-2	+8	+13	345	-0	-0	+2	403	-86	-25	-42
Below Median (75%-50% exceedence)																
Change in No Action Alternative:	299	--	+265	-1	301	--	+84	+38	318	--	-18	-39	337	--	+161	+64
Change in Alternative from No Action Alternative:																
NODOS Alternative A	297	-2	+2	+1	302	+1	+11	+8	319	+1	-1	+1	308	-29	-14	-25
NODOS Alternative B	301	+2	-7	+1	299	-2	+1	+3	319	+1	+1	+1	306	-31	-23	-31
NODOS Alternative C	297	-2	-6	+1	302	+0	+8	+7	319	+1	+0	+1	304	-33	-19	-31
Lower (100%-75% exceedence)																
Change in No Action Alternative:	225	--	+75	+26	254	--	+47	+30	275	--	-11	-40	259	--	+99	+62
Change in Alternative from No Action Alternative:																
NODOS Alternative A	226	+1	-1	-0	260	+6	+5	+0	276	+1	-0	+0	254	-6	-18	-17
NODOS Alternative B	226	+1	-2	-0	257	+3	+2	-0	278	+3	+1	+1	253	-6	-36	-20
NODOS Alternative C	226	+1	-2	-1	260	+6	+3	-0	277	+2	+0	+0	252	-7	-21	-18

1 Based on CALSIM II 82-year simulation period
2 Current Climate and Sea Level
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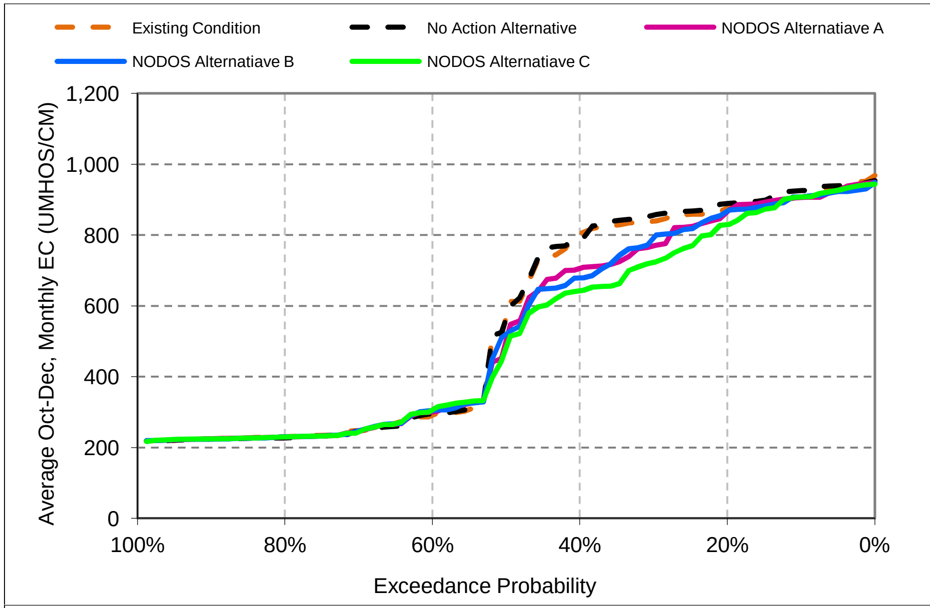
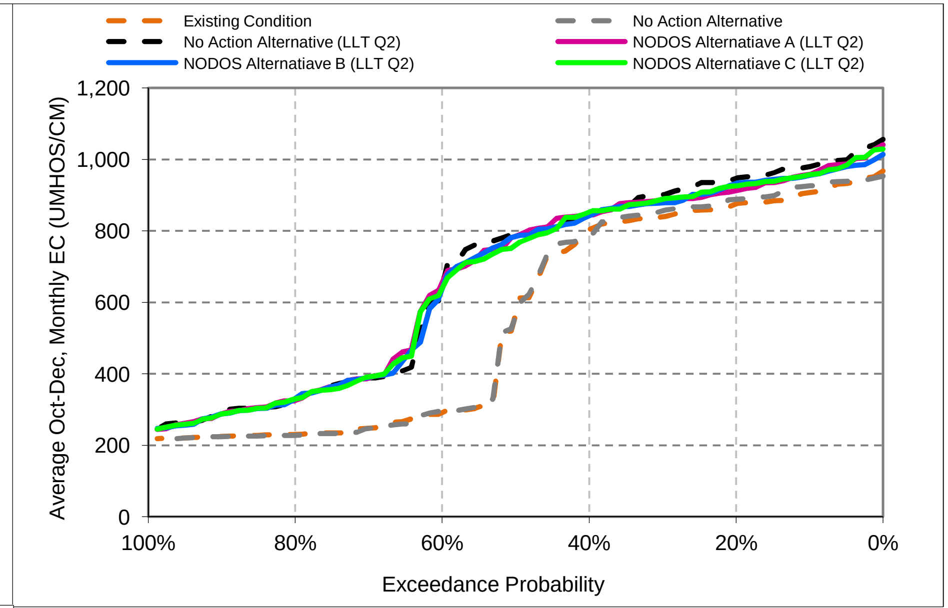




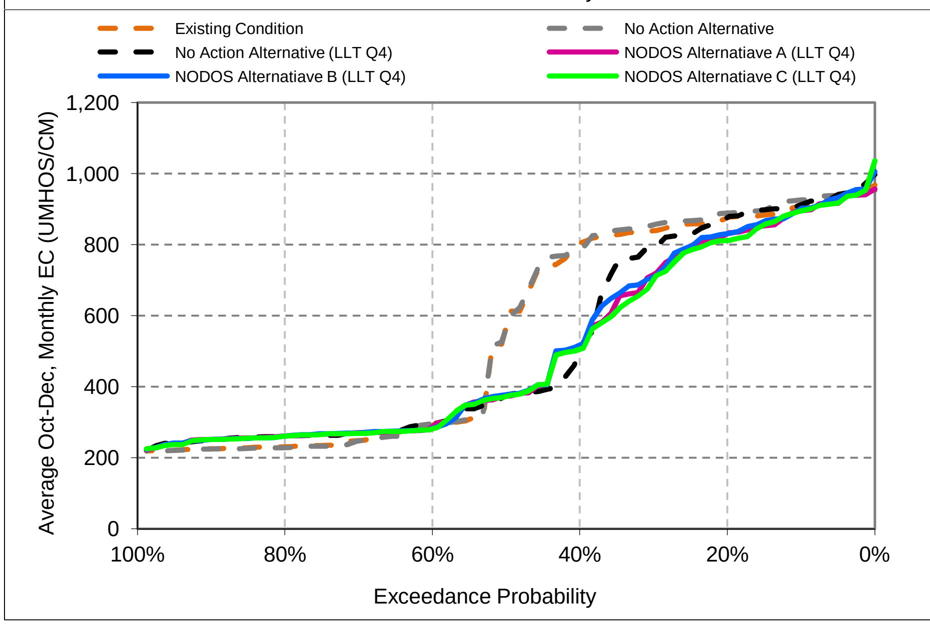
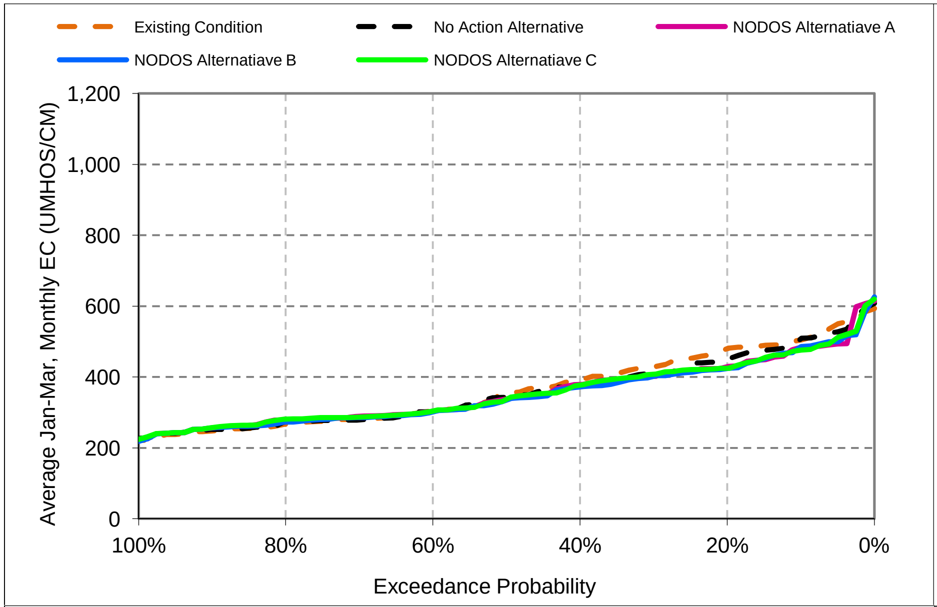
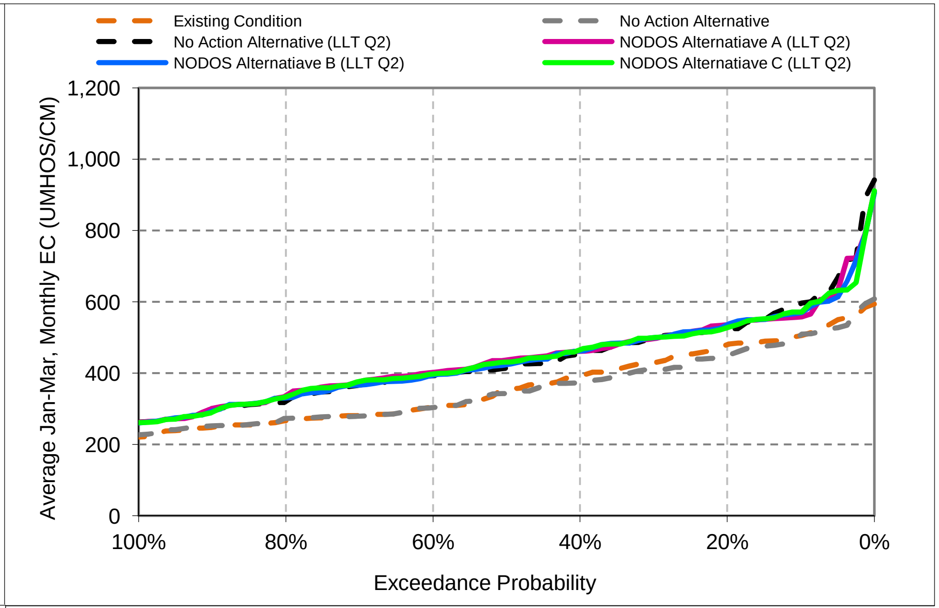


Figure 25B-51-5.
Old River at Rock Slough,
Average Oct-Dec, Monthly EC (UMHOS/CM)
LLT Sensitivity





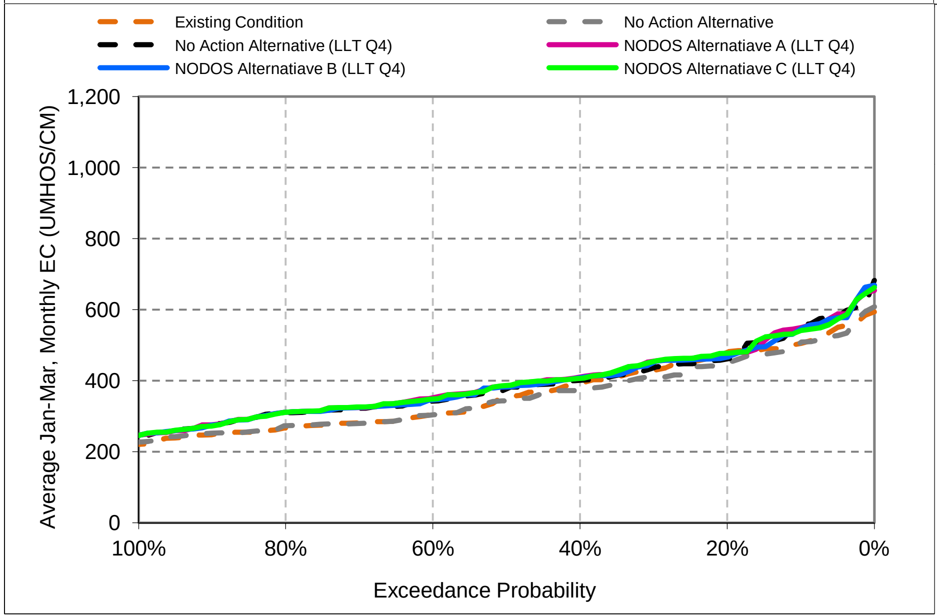
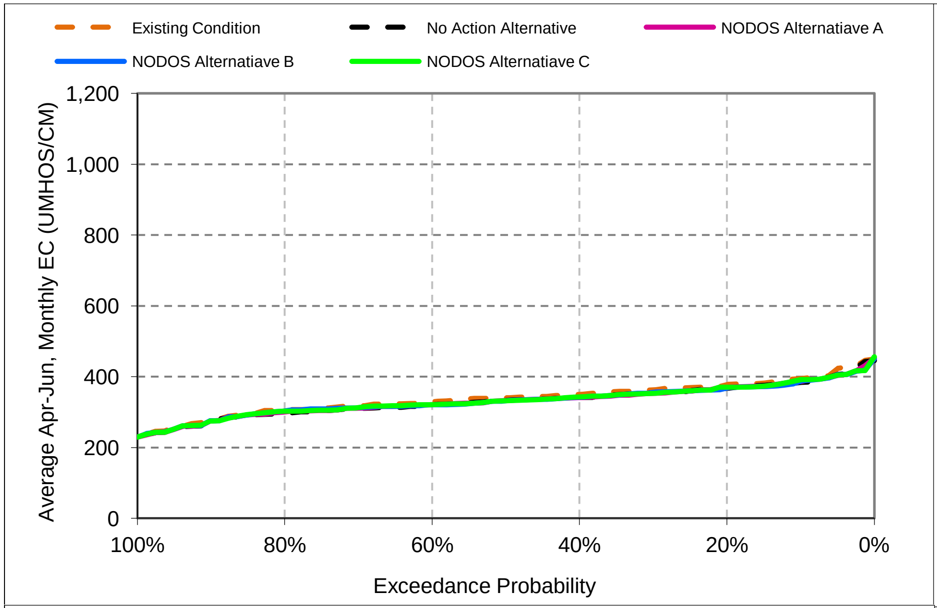
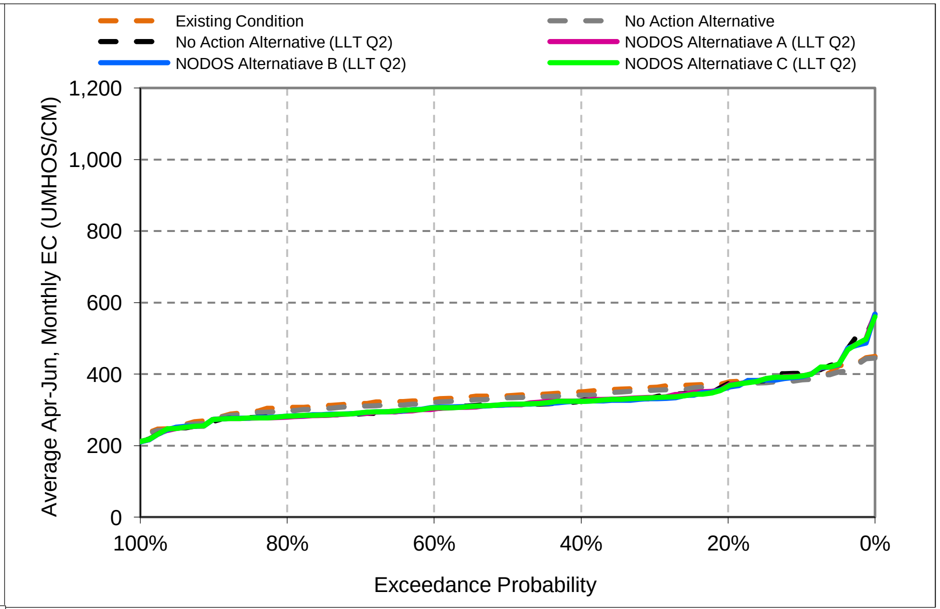


Figure 25B-51-6.
Old River at Rock Slough,
Average Jan-Mar, Monthly EC (UMHOS/CM)
LLT Sensitivity





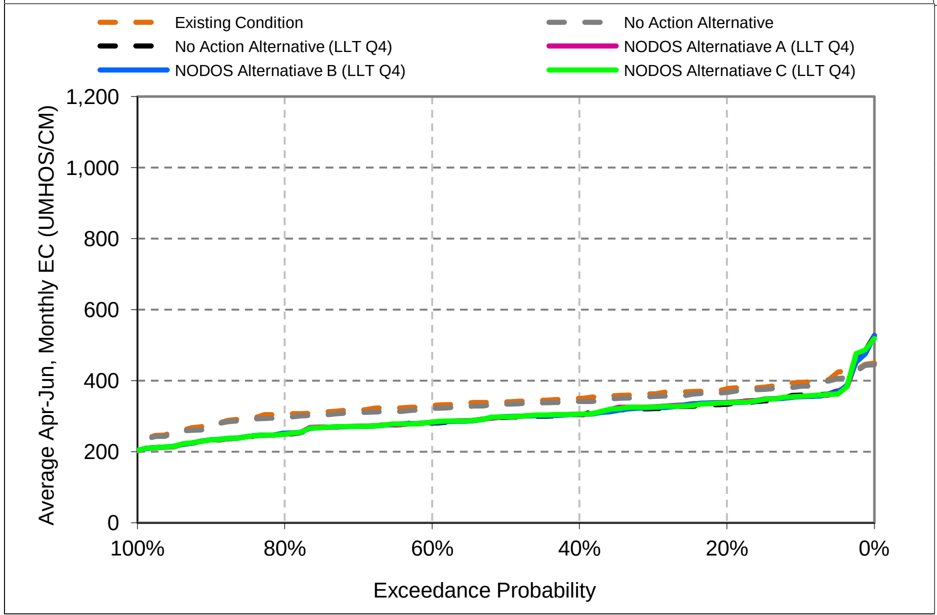


Figure 25B-51-7.
Old River at Rock Slough,
Average Apr-Jun, Monthly EC (UMHOS/CM)
LLT Sensitivity

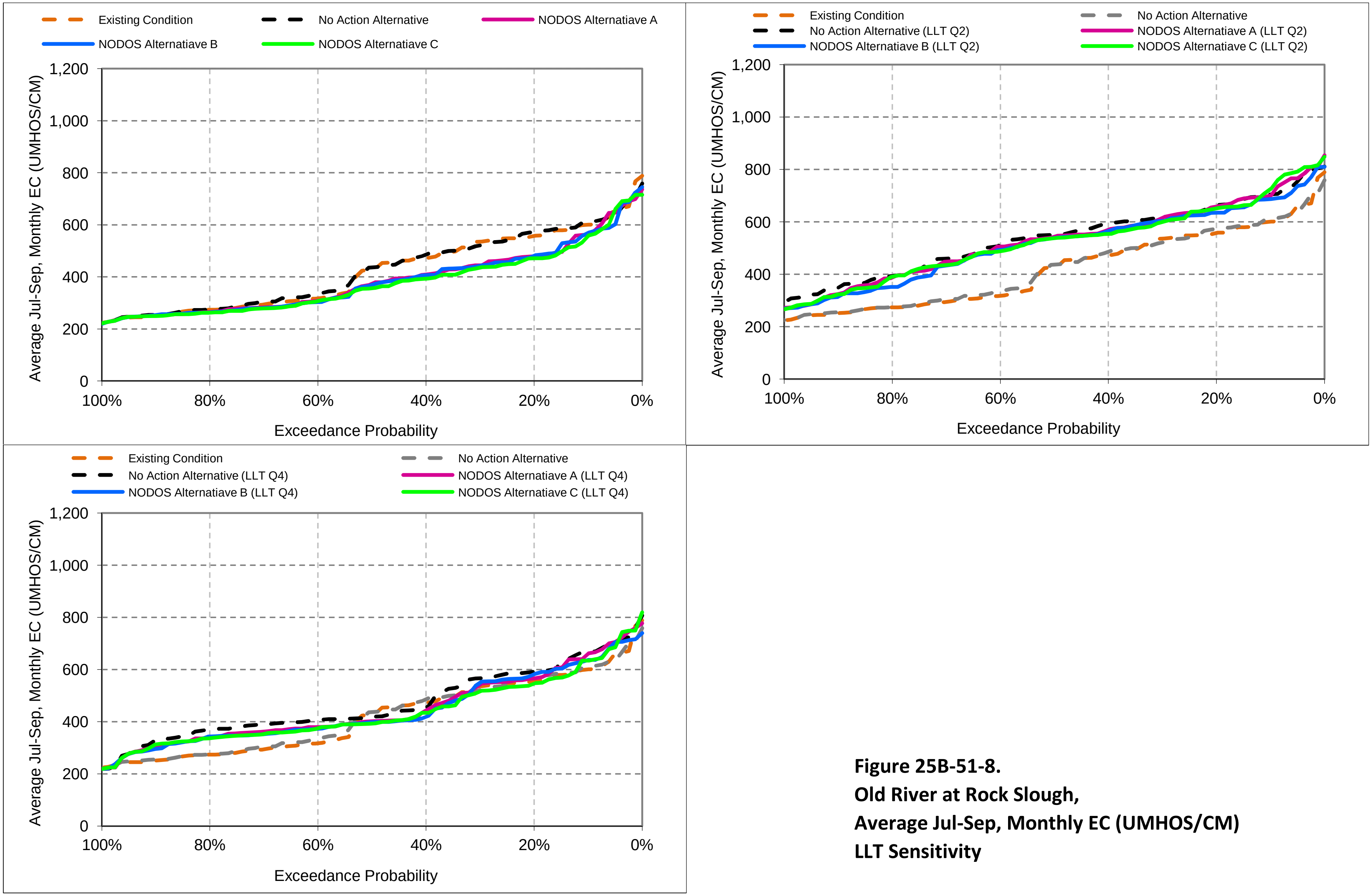


Figure 25B-51-8.
Old River at Rock Slough,
Average Jul-Sep, Monthly EC (UMHOS/CM)
LLT Sensitivity